



Climate Resilience Multi Phased Programmatic Approach (CRes MPA)

Strategic Social Assessment



**Ministry of Agriculture, Rural Economic
Affairs, Livestock Development, Irrigation
and Fisheries & Aquatic Resources
Development**

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EXECUTIVE SUMMARY

Introduction

Climate-related hazards pose a significant threat to economic and social development in Sri Lanka. The 2019 Global Climate Risk Index Report, launched at the Climate Summit in Katowice (COP 24), ranks Sri Lanka second among the countries most affected by extreme weather events. During the 2010 to 2018 period, 13.7 million people were affected by floods and 11.7 million by droughts. Available data shows an increasing trend in the frequency of flood occurrences in many parts of Sri Lanka, with 87% of Sri Lanka's population living in moderate or severe hotspots¹. Sri Lanka's economy is also severely affected by extreme weather events, and as per current estimates, by 2050, potential impacts due to climate change are foreseen to lead to as much as 1.2% loss of annual GDP.

To support the the Government of Sri Lanka's (GoSL) commitment and strategy relating to flood risk mitigation and enhancing resilience in prioritized basins, a Climate Resilience Multi-Phased Programmatic Approach (CRes MPA) will be implemented in three phases over a period of eight years, with objectives as follows:

- Phase I (Flood Early Warning and Upper Kelani Basin Flood Risk Mitigation Project, US US\$326 million): To enhance the capacity of the GoSL to deliver improved weather and climate forecasting and early warning system, and to reduce flood risks in the lower Kelani basin (Hanwella to Kaduwela);
- Phase II (Kelani Basin Flood Risk Mitigation Project, US\$169 million): To reduce flood risks in the lower Kelani basin (Hanwella to river mouth);
- Phase III (Basin Flood Risk Mitigation and Reservoir Project, US\$295 million): To reduce flood risks in the upstream Kelani and lower Mundeni basins.

It is envisaged that such a multi-phased approach will allow the GoSL to make required investments capable of assuring protection up to a 1 in 100-year return period event in the Kelani basin while allowing for greater adaptability through a forward-looking learning agenda.

Phase I of the MPA: Flood Early Warning and Lower Kelani Flood Risk Mitigation Project

To enhance the capacity of the GoSL to deliver improved weather and climate forecasting and early warning and to reduce flood risks in the lower Kelani basin (Hanwella to Kaduwela), interventions under Phase I includes: (i) comprehensive structural and non-structural flood risk mitigation investments in the Kelani basin (Hanwella to Kaduwela); (ii) modernization of hydro-meteorological information and services, forecasting and early warning systems and improved dissemination of weather, climate and hydrological forecasts, and warnings and advisory information to key end-users and communities through continuous institutional strengthening; and (iii) development of a real-time

¹ South Asia's Hotspots, The World Bank, Spring 2018
(<https://openknowledge.worldbank.org/bitstream/handle/10986/28723/33179.pdf?sequence=2&isAllowed=>)

flood operational guidelines and establishment of institutional arrangements and capacity for early warning and flood risk management.

Phase I of the MPA has five main components and will be implemented over a period of five years:

- Component 1: Flood Forecasting and Early Warning in Priority Basins (US\$ 47.4M);
- Component 2: Flood Mitigation Investments in the lower Kelani Basin (US\$ 204M)²;
- Component 3: Land Acquisition, Resettlement Assistance, and Safeguards Implementation (US\$ 65M);
- Component 4: Project Management (US\$ 5M);
- Component 5: Contingent Emergency Response Component (CERC) (US\$ 5M).

Objective of the SSA

The Strategic Social Assessment (SSA) has been planned at the initial stage of the project preparation to ensure that social considerations and concerns are appropriately and adequately integrated in the prioritization, investment decisions, planning, and implementation of structural and non-structural interventions for flood and drought risk mitigation proposed in the basin investment plans. Specifically, the key objectives of the SSA are to: (i) provide a broad socio-economic baseline of the KRB intervention areas, including demographic, social, cultural, historical, political, institutional, ethnic, and development dimensions; (ii) identify, assess, and describe the likely social impacts in implementing the basin investment plans, including the physical and economic displacement related constraints bearing on the implementation of any related structural and non-structural interventions; (iii) provide the GoSL agencies and development partners with relevant knowledge and information to assess the adequacy of social considerations and safeguard measures to be incorporated with the proposed interventions of the basin investment plan; (iv) identify relevant stakeholders, carry out stakeholder assessment and consultations regarding DRM investment planning, impact assessment, and mitigation planning; (v) assess the degree to which the existing policies, laws, regulations, and the institutional capacity of the GoSL (more specifically of the project implementing agency) to address major social challenges related to proposed flood and drought interventions; (vi) recommend (at strategic level) measures to avoid, minimize, and mitigate adverse impacts while optimizing beneficial impacts to the communities affected by the proposed interventions.

Prevailing Socio-Economic Conditions

Project Area: The Kelani River Basin area covers seven Districts, 38 Divisional Secretariat Divisions (DSDs), 1,091 Grama Niladhari Divisions (GNDs), and is on 234,010 hectares of land area. Although there are 1,091 GNDs in the Kelani River Basin area, only 98 GNDs of the 13 DSDs of the Colombo, Gampaha, and Kegalle Districts are affected by the Project.

Land Use Patterns: Colombo lies in the Kelani river basin and is the largest commercial and administrative hub of the country. Significant climatic and topographic variation is observed

² This component will finance the flood mitigation investments in the lower Kelani basin between Hanwella and Kaduwela for approximately 15 km. The investments will include: (i) construction of flood embankments along the main river; (ii) river bank protection and river training works; (iii) installation of pumps and gates for tributary flood; and (iv) replacement of the existing salinity barrier at Ambatale with a permanent gated structure. The remaining flood protection works from Kaduwela to the sea outfall and upstream of Hanwella up to Ranwala will be financed under Phase II.

throughout the watershed resulting in entirely different land use systems. The upper catchment area is more rural and is used primarily for plantation and agricultural land, and the lower catchment area is built-up land with modern towns and cities. Notably, except for areas near Colombo, large scale human settlement activities did not take place in this area for a long time due to flood risks; but this situation has changed during the last three or four decades with the establishment of the Free Trade Zone (FTZ) in the area, declaration of Sri Jayawardanapura Kotte as the Administrative Capital of the country, and the construction of factories and warehouses surrounding the FTZ. Changes in land use from agriculture to industrial, commercial and residential activities, has mostly been haphazard thus leading to heavy property damage even after a minor flood and other extreme weather events.

Characteristics of the Households: Approximately 76,300 households are estimated to be living in the impacted area of the Kelani River Basin which constitutes 15% of the total number of households in the respective DSDs of the various districts. The highest percentage of individuals in the project area represent the age group of 35-59 years (32%) but dependent population, comprising children below four years old and elders above 60 years old, constitutes a significant, 21% of the population. In terms of religion and ethnicity, the area is predominantly Sinhalese (81%), followed by Tamils (10%), and Sri Lanka Moors (8%). Likewise, 72% of the population are Buddhists followed by 9% Muslims, 6% Hindus and 10% Roman Catholic. While the Sinhala/Buddhist culture dominates the basin area, impacts of the Tamil/Hindu culture is more pronounced in the plantation areas, and through relatively small, the impacts of Islamic culture are very strong in the areas where the Muslims live.

Socio-Economic Status of Households: The majority (approximately 97%) of the population is educated, and only 3% have no schooling/formal education attainment. More than 43% of the households derive their income from wage earnings, 4% from agriculture, and 54% from non-agricultural activities. The average income in the project affected district is higher than the national average presumably due to the commercial and industrial activities in the area. Yet, 18% of the total households in the impacted area are Samurudhi beneficiaries.

Gender and Vulnerability: While the status of women, especially in terms of education attainment and labor force participation rate in the project area is comparable to the national data, women are more vulnerable to the consequences of natural disasters compared to men due to differences in employment status, income, gendered social roles, social norms, and restrictions governing their behavior. Likewise, vulnerable groups in the project area comprise: women-headed households, persons below the poverty level, the unemployed population, population who did not attend schools, differently abled population, children below four years old, and the elderly.

Commercial, Industrial, and Other Development Activities: Altogether, there are 9,777 industries and 2,666 registered commercial units in the impacted area of the Kelani River Basin. The river basin is also famous for gem and sand mining and clay extraction, though most of these extractions, particularly sand mining, are illegal and cause heavy damage to river embankments, the river bed, and even to water extraction facilities. Major ongoing development interventions in the basin area include flood protection works (dykes, bunds, and gates), expansion of roads network, water intake structures, urban housing schemes, and drainage systems.

Social Impact Analysis

The CRes MPA, via its three consecutive but overlapping phases, is expected to bring overall positive social and environmental benefits to the programme areas by ensuring a holistic and sound system for the management of floods and climate change related impacts. Positive impacts of the Project include: (i) more accurate and timely weather and flood forecasting; (ii) enhanced inter-agency co-ordination; (iii) a service-delivery business model approach; (iv) better decision-making of government and citizens before and during disasters; and (v) increased protection of people and assets. Each phase and the overall programme will generate social and economic benefits as per the GoSL's vision to protect life and assets while transitioning to a middle-income country status.

However, construction of new infrastructure and the upgrading of existing ones under the Project are likely to result in significant social impacts that will need to be mitigated during the design and implementation phases of the investments. Project interventions, including the construction of flood embankments and the reservoirs in the mid-upper catchment, will require some acquisition of private land and the displacement of people that have encroached onto the Irrigation Department reservation³ alongside the Kelani river. As mentioned under Component 3 of Phase I of the Project, one of the objectives of land acquisition and resettlement financed under the Project is to enhance the safety and security of communities living along the riverbanks from the perennial risks of floods and other extreme weather events but adverse impacts on households and businesses due to land acquisition and other project-related activities will be significant. Notable will be disruption on the activities of large and small-scale industries, commercial units, and agriculture and plantation sectors, which will also lead to loss of income, livelihood and employment for households dependent on these sectors.

Likewise, impacts on existing infrastructure and facilities, including roads located close to the riverbank, water treatment plants, electricity supply, water supply lines, etc., and community resources such as bathing sites, public water facilities, etc., are also envisaged. Sites of cultural, archaeological and religious significance, including the prominent ones like the Kelaniya temple, Thalwatta temple, the Kovil at Peliyagoda, and the "Red Church" at Biyagama, will also be affected.

While there are no indigenous communities located in the intervention areas, vulnerable persons and households such as women-headed households, those living below the poverty line, households with disabled family members, may suffer disproportionately due to resettlement and/or loss of livelihoods. Construction works is also likely cause rapid migration to and settlement of workers and 'followers' in the project area which can lead to increased risks of social conflict, illicit behaviour, burden on and competition for public service provision, risk of communicable diseases, and gender-based violence, particularly in the form of inappropriate behaviour on the part of the laborers. Similarly, construction-related impacts such as traffic congestion, dust, noise, vibration are common issues that are likely to affect families/persons living in the immediate vicinity of the construction sites.

³ In the project affected area this reservation has not been properly demarcated.

Vulnerable Groups and Communities

Generally, large-scale public development interventions to improve socio-economic conditions of the population result in providing benefits to the larger group of people/communities affected. However, invariably some groups/communities are adversely affected and in such a way that they are unable to cope with the changes and impacts of the development interventions on their own. The Project has strategies to address these “vulnerable” groups/communities. The Project has identified families with disabled persons, families living below the poverty line, families headed by women, and the elderly as the main vulnerable groups. Consultations were held with officials and community members to assess the impact of the Project on the vulnerable groups. The impacts included: mobility restrictions for disabled persons in project areas; hardships when relocating and resettling at unfamiliar locations where familiar places, such as medical centres and schools, are lacking; changes in income generation norms and activities; disruption of schooling; and the loss of current employment and income streams.

Consultations also lead to suggestions on measures to mitigate adverse impacts on vulnerable groups. There are government programmes and policies to provide assistance to these vulnerable groups. In addition, several NGOs were identified as catering to the needs of the vulnerable groups. The Project will aim to co-ordinate with officials and NGOs to provide the assistance necessary.

Gender Analysis

Issues relating to gender, vulnerability, and inclusion will be considered from various perspectives within the context of Project, including: (i) gender-sensitive analysis and identification of risks and benefits associated with activities under the Project; (ii) project-specific gender considerations to enhance benefits to women, vulnerable groups, and local community members; (iii) measures for ensuring that any risks and impacts arising from proposed interventions that have differential impacts on women and other vulnerable groups, are identified and mitigated; (iv) enhancing the voice and representation of women, especially through continuous engagement and consultations with women, and (v) gender-disaggregated monitoring indicators.

Specifically, as part of the implementation plan, a detailed baseline analysis will be carried out to understand how communities obtain climate and disaster related information, and how these different communities, including women, people with disabilities, the elderly, or any other such vulnerable groups, can be effectively informed about such information available through the MPA. Based on the findings of the assessment, an action plan for addressing inclusion issues, including gender, will be prepared. Activities to enhance gender considerations into the MPA include: focused information dissemination and awareness raising for female citizen on flood early warning and impact-based forecasting; support for the preparation of community disaster management plan in the project sites; use of citizens’ monitoring committees that review and follow up on quality, safety, and progress aspects of the interventions; options for women to have joint ownership or independent ownership of the land and house among the resettled households; orientation trainings on gender for the PMU and other decision-makers; and the development of a robust Grievance Redress Mechanism that is sensitive to the needs of women and other vulnerable groups.

Stakeholder Analysis

Through the consultation process, a comprehensive list of stakeholders in the project intervention area was identified. The stakeholders were categorized into: (i) first level: national level and local level; (ii) second level: governmental, non-governmental, and private sector; and (iii) third level: governing and administrative bodies, developmental and planning bodies, utility services providers, representatives for gender and vulnerable groups, authorities from the agriculture, irrigation, education, and health sectors, civil society, and CBOs. The stakeholders were consulted for information on five parameters: (i) their social status; (ii) the roles and responsibilities of stakeholders towards the Project; (iii) the stakeholders' ability to influence the Project; (iv) the ability of the Project to influence stakeholders; and (v) the level of knowledge and understanding among the stakeholder about the Project. A stakeholder positioning map was created, geographically presenting the summary of the status of the stakeholders in relation the five parameters. This was mapped against the potential for achieving the overall objectives of the project at zero level, at 25%, at 50%, at 75%, and at full potential.

Of the national level organizations, 50% provide about 75% of social development facilities to communities in the area, while the other 50% of national level organizations provide either 50% or 25% of social development facilities to the communities in the area. For organizations working on behalf of gender and vulnerable groups, 50% provide social development facilities to its communities at the community level while other 50% are unable to provide such facilities at the community level.

All the national level organizations involved in providing public utility and public infrastructure services in the basin area have an important role towards the CRes MPA (50% - 75%). Organisations representing gender and vulnerable groups are of the view that they have an extremely limited role towards the CRes MPA.

Of the DSDs, 54% expressed that they are unable to influence the CRes MPA as it is a project undertaken by the central government and, so far, they had not been consulted in designing the project. The balance 46% of DSDs expressed that they have the ability to influence the CRes MPA in regards to land and land resettlement matters. The SLLRDC has the power to influence the CRes MPA as they are engaged in a sector relevant to the Project. The Ministry of Women and Child Affairs, the Provincial Department of Sociology, the Department of Samurdhi Development, and the Ministry of Social Empowerment can influence the CRes MPA in delivering the social safeguards required by the communities in the project interventions.

The Project can influence the Department of Irrigation and the SLLRDC, as climate resilience issues are relevant to the sectors that they engage in. Almost all the DSDs are of the view that it is a mandatory requirement of the DSDs to look after the welfare of the communities in the project impacted area and, therefore, the Project is able to influence the DSDs on welfare matters of the community. The Project can influence the Ministry of Women and Child Affairs and the Provincial Department of Sociology to obtain required service as institutions who oversee matters relating to women and children. The Project can influence the Department of Samurdhi Development and the Ministry of Social Empowerment as they oversee matters relating to the welfare of vulnerable communities. The Project can influence the National Secretariat for Persons with Disabilities and the National Committee

on Women, as national level organizations dealing with national policies for women and disabled persons.

The stakeholders' knowledge on the CRes MPA and Project activities is not at an optimum level. Only 46% of the DSDs have a good understanding about the Project, another 46% do not have a sufficient understanding, and one DSD (8%) has no understanding or knowledge of the Project. Knowledge of the Project at the DSD level is key as it is essential for the local administration of Project. The same situation exists with national level organizations. Apart from that, organizations working on behalf of gender and vulnerable groups have no awareness of the Project or its activities.

Legal, Institutional, and Regulatory Framework

Sri Lanka has a complex legal system to manage land acquisition, regulate land use, address the issues of gender equality and inclusion, and consultations and information disclosure. In addition to laws relating directly to private land acquisition and the recovery of state and other public land, there are also policies and regulations that relate to public infrastructure and services. Some of the areas where the project interventions will be carried out are under the jurisdiction of state agencies (such as the UDA, the RDA, Municipal Councils, and the SLLRDC), necessitating compliance as well as close co-ordination with the those authorities.

The World Bank's Operational Policies relevant to the project include: OP/BP 4.01 on Environment Assessment, OP/BP 4.12 on Involuntary Resettlement, and the World Bank's Environmental and Social Framework (relevant for Phases II and III of the CRes MPA). Despite the elaborate legal system to manage land acquisition for development purposes, some gaps exist between the GoSL's national framework and systems and the World Bank's requirements, especially in matters relating to exploring project alternatives to avoid or minimize impacts, compensation for non-titled persons affected by the interventions, consultations with affected persons on resettlement options, and livelihood restoration and rehabilitation measures. All activities under the CRes MPA will be consistent with the legal/regulatory framework of Sri Lanka and aligned with the World Bank policies and guidelines.

Mitigation Measures

The measures and recommendations to avoid, minimize, or mitigate the social impacts of the project interventions include: (i) measures in stakeholder engagement; (ii) measures towards the development of a RPF and RPs; (iii) measures towards the development of a SMF; (iv) and other measures and recommendations.

An efficient consolidation and integration of other development projects implemented or to be implemented in the same localities will be crucial to: create awareness of the projects among the stakeholder organizations within the basin area, including the respective Divisional Secretaries and their staff; gain economies of scales of project implementation by different types of stakeholders, by avoiding the duplication of work; and co-ordinate with the MMWD in relocating affected persons along the river embankment who are eligible under the "Urban Regeneration Programme" and on rehabilitation and improvement works at the outfall of canals that drain into the Kelani river. There should also be co-ordination, through Project Steering Committees, between the PMU and other institutions, such as the CEA, UDA, the Department of Archaeology, the Geological Survey and Mines Bureau, the National Buildings Research Organization, the UDA, the Forest Department, the

Department of Wild Life Conservation, the Land Commissioner's Department, the District Disaster Management Centre, the RDA, the Survey Department, Local Authorities, District Secretariats, and Divisional Secretariats of the project intervention areas.

Recommendations for the RPF and RPs should include measures on resettlement and relocation (including addressing the loss of livelihoods, the lack of facilities, meagre compensation, secondary displacement, and poverty increases); land acquisition; and the identification of existing livelihood patterns. Recommendations for the SMF include reducing the stress of project interventions; providing ongoing support; access to healthcare; and counselling services.

Other recommendations include transparent information dissemination; enhanced production of local communities; minimising the disruption of economic activities; the empowerment of women; the empowerment of vulnerable groups; and ensuring the alignment of the Project's RPF and SMF to have consistent approaches to social issues on land related and non-related matters.

ABBREVIATIONS

ACAS	Agriculture and climate advisory services
AFD	Agence Française de Développement (French Development Agency)
AP	Affected Person(s)
ASA	Advisory Services and Analytics
AWS	Automatic weather station
CBSL	Central Bank of Sri Lanka
CCDRP	Comprehensive Climate and Disaster Resilience Program
CEA	Central Environmental Authority
CEB	Ceylon Electricity Board
CERC	Contingent Emergency Response Component
CONOPS	Concept of Operations
CRes MPA	Climate Resilience Multi-Phased Approach
CRIP	Climate Resilience Improvement Project
CV	Chief Valuer
DA	Designated Account
DFC	Department of Forest Conservation
DMC	Disaster Management Center
DoM	Department of Meteorology
DP	Displaced Person
DPD	Deputy Project Director
DPL with Cat-DDO	Development Policy Loan with a Catastrophe Deferred Draw-Down Option
DRM	Disaster risk management
DS	Divisional Secretary
DSWRPP	Dam Safety and Water Resources Planning Project
EA	Environmental Assessment
EAMF	Environmental Assessment and Management Framework
EIA	Environmental Impact Assessment
EM	Entitlement Matrix
EMPs	Environmental Management Plans
ESMP	Environment and Social Management Plan
ESS	Environment and Social Standards
EWS	Early Warning System
FA	Financing Agreement
FM	Fiduciary Management
GBV	Gender Based Violence
GN	Grama Niladari (administrative officer at the village level)
GoSL	Government of Sri Lanka

GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
HMIS	Hydro-Meteorological Information System
IAU	Internal Audit Unit
ICT	Information and Communication Technology
ID	Irrigation Department
IEE	Initial Environmental Examination
IFR	Interim Financial Reports
IP	Indigenous People
JICA	Japan International Cooperation Agency
KRB	Kelani River Basin
LA	Land Acquisition
LAA	Land Acquisition Act
LAR	Land Acquisition Regulations
LARC	Land Acquisition and Resettlement Committee
LARU	Land Acquisition and Resettlement Unit
LRP	Livelihood Restoration Plan
MC	Municipal Council
M&E	Monitoring and Evaluation
MIWRDM	Ministry of Irrigation, Water Resources, and Disaster Management
MIS	Information Management System
MPA	Multi-phase Programmatic Approach
NBRO	National Building Research Organization
NFCS	National Center for Climate Services
NGOs	Non-governmental Organizations
NMHSs	National Meteorological and Hydrological Services
NEA	National Environment Act
NGO	Non-Governmental Organization
NHDA	National Housing Development Authority
NIRP	National Involuntary Resettlement Policy
NPSC	National Project Steering Committee
NWSDB	National Water Supply and Drainage Board
OP	Operational Policy (of the World Bank)
PDO	Project Development Objective
PIB	Public Information Booklet
PMU	Project Management Unit
POC	Project Operation Committee
PPSD	Project procurement Strategy for Development

PrDO	Programme Development Objective
PS	Pradeshiya Sabha
RAP	Resettlement Action Plan
RDI	Regional Director of Irrigation
RDA	Road Development Authority
RIMES	Regional Integrated Multi-Hazard Early Warning System
RPF	Resettlement Policy Framework
SBD	Standard Bidding Documents
SEA	Strategic Environmental Assessment
SFDRR	Sendai Framework on Disaster Risk Reduction
SI	Systems Integrator
SIMP	Social Impact Management Plan
SLRs	Sri Lankan Rupees
SMF	Social Management Framework
SSA	Strategic Social Assessment
TA	Technical Assistance
TOC	Theory of Change
UC	Urban Council
UDA	Urban Development Authority
UNDP	United Nations Development Programme
WB	World Bank
WMO	World Meteorological Organization

GLOSSARY OF TERMS

Affected Person: Any person, group, community, or people who, as a result of the implementation of the Multi-phase Programmatic Approach (MPA), is affected by loss of the right to own, use, or otherwise benefit from land (residential, agricultural, or commercial), water, livelihood, annual or perennial crops and trees, a built structure, or any other fixed or movable assets, either in full or in part, permanently or temporarily. S/he can be a legal owner, non-titled structure owner, or tenant and will receive different compensation and Resettlement and Rehabilitation (R&R) packages as per the Entitlement Matrix (EM).

Business Owner: Any person who owns or conducts a business within the project-affected area, the operation of which may be disrupted by the construction work under the project. S/he can be a legal owner, non-titled structure owner, or tenant and will receive different compensation and R&R packages as per the EM.

Census: Complete enumeration based on household questionnaire survey that covers all affected persons, irrespective of ownership and entitlement, and their assets. It can be used to minimize fraudulent claims made by people who move into the project affected area after the cut-off date has been announced in the hope of being compensated or resettled.

Compensation: Payment in cash or in-kind for an asset or a resource that is acquired or affected by the project, at the time the asset needs to be replaced.

Cut-off date: The cut-off date will be publicly announced and provided in all the Resettlement Action Plans (RAPs). The cut-off date for eligibility for entitlement is the date of notification under the section 2 notice of the Land Acquisition Act or the start date of the census surveys. Persons who encroach on the area after the cut-off date are not entitled to claim compensation or any other form of resettlement assistance.

Custodians of Community: A registered association or such other legally recognized organization or committee of people managing, looking after, or responsible for the upkeep of, and liabilities relating to the land and structures in the project area.

Destitute Households: Socially and economically distressed households who may suffer disproportionately due to conflict or development induced displacement. They may include women headed households, elderly-headed households, extremely poor, disabled, refugees, internally displaced people, orphans, people who are living in welfare centers, recently resettled families during the post conflict period, and others identified as case by case.

Encroacher: Someone who has illegally expanded or extended the outer limit of his/her private premises beyond the approved building line or agricultural land, and has occupied public space beyond his/her plot of or agricultural/residential land.

Entitlement: A variety of measures comprising compensation, income restoration, transfer assistance, income substitution, relocation, and other benefits which are due to affected people, depending on the nature of their losses, to restore their economic and social base.

Family Card: A printed document in which details about the Affect Person (AP) and their family, type and degree of impact, and their entitlements are entered. This will be printed in duplicate. The original copy will be given to the AP and the duplicate kept in the custody of the Project Management Unit (PMU). Whenever an entitlement is granted, the AP will acknowledge receipt by signing on the card as having received the same, for transparency and record purposes.

Gender Equity: Recognition of both genders equally in terms of provision of entitlements, treatments, and other measures under the Social Management Plan (SMP) or RAP.

Host Population: People living in or around areas where the people physically displaced by a project will be resettled who, in turn, may be affected by the impacts of such resettlement.

Indigenous People: “Indigenous Peoples” (IP) is used in a generic sense to refer to a distinct, vulnerable, social and cultural group possessing the following characteristics in varying degrees: (a) self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; (b) collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; (c) customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and (d) an indigenous language, often different from the official language of the country or region. Social Assessment carried out under the MPA confirmed that there are no IP communities that live in the selected areas for project interventions.

Involuntary Resettlement: Resettlement is involuntary when it occurs without the consent of the displaced persons or if they give their consent without having the power to refuse resettlement.

Implementation Schedule: Timeframe and sequence_of activities for the project.

Income Restoration: Re-establishing income sources and livelihood of people affected to a better or at least the pre-project levels.

Land Lot: Portion of land that belongs to a AP, Project Affected Household (PAH), or government institution. The Department of Surveys defines a lot as the basic unit of land after demarcation of the boundaries.

Land Owners: Owners of land with or without trees, crops, or structures affixed to the land with clear title in government records. In some exceptional cases, a person who owns land/s is within the project-affected areas regardless of proof of such ownership will also be entitled, provided that such ownership is recognized under law. In such cases, special decisions will be taken by the responsible authority in consultation with the local authority, and the community.

Livelihood: A means of living such as agriculture, animal husbandry, fishing, wage labour, services of various types, trade, etc.

Non-Resident Land and Structure Owners: Legal land owners who are not in possession of their land either because they have rented or leased out their said land and property affixed to it, or such land has been taken possession of by any other person.

Operational Policy (OP) 4.12: The objective of the World Bank's OP. 4.12 on 'Involuntary Resettlement' is to avoid or minimize involuntary resettlement, and where it is not feasible, assist displaced persons in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

Project Affected Household (PAH): Any household or a family that faces an impact as a result of the implementation of the project, subproject activity, etc., loses the right to own, use or otherwise benefit from a built structure, land (residential, agricultural, commercial), annual or perennial crops and trees, or any other fixed or movable assets, either in full or in part, permanently or temporarily that could affect the household's livelihood/economic status.

Project Affected Household Head (PAHH): Any person who is representing the head of family or household, as a result of the implementation of subproject, etc., loses the right to own, use or otherwise benefit from a built structure, land (residential, agricultural, commercial), annual or perennial crops and trees, or any other fixed or movable assets, either in full or in part, permanently or temporarily that could affect the households' livelihood/economic status.

Protected Tenants: Tenants occupying a legal property (commercial or residential) and are protected under the Rent Act of 1972 or its later amendments, which prevents the land owners from evicting them or increasing the rent at their own will.

Relocation: Rebuilding and/or reallocating housing and assets, including productive land and public infrastructure, in another location.

Rehabilitation: Re-establishing incomes, livelihoods, living, and integration within the social system.

Replacement Value/Cost: The replacement value is the cost that is adequate to purchase similar property of same quality in the open market and cover transaction cost. In applying this method of valuation, depreciation is not taken into account. For losses that cannot be easily valued or compensated, attempts are made to establish access to equivalent and culturally appropriate resources and earning opportunities. Under the project, the rate of compensation for lost land and assets will be calculated at full replacement cost.

Resettlement: A process to assist the displaced people and communities to replace their lost land, houses, and assets; restore access to assets and services; and improve their socio-economic and cultural conditions. It includes settlement of displaced people on buildable land or houses/apartments in the same (and if not, similar and nearby) locality with barrier-free access to basic amenities. New settlement schemes in the context of development projects following restoration of law and order, including restoration of livelihoods, incomes, and assets bases and assistance to rebuild life after being resettled, are also included in resettlement.

Resettlement Action Plan (RAP): The document in which a project sponsor or other responsible entity specifies the procedures that it will follow and the actions it will take to mitigate adverse effects, compensate losses, and provide development benefits to persons and communities affected by an investment project.

Resettlement Assistance: Support provided to people who are physically displaced by a project. Assistance may include transportation, food, shelters, and social services that are provided to affected people during their relocation. Assistance may also include cash allowances that compensate affected people for the inconvenience associated with resentment and defray the expenses of a transition to a new locale, such as moving expenses and lost works days.

Resident Land and Structure Owners: Owners with clear title deeds for the land and structures which they are currently occupying for their own use, residential, commercial, cultural, or religious purposes.

Stakeholders: Individuals, groups, organizations, and institutions interested in and potentially affected or benefitting from a project, some of whom may also have the ability to influence a project positively or negatively.

Squatter: Someone who has occupied public or private land, developed structures on it, and put such land into residential, agricultural, or commercial use without obtaining development permission and formal title under law.

Sub Families: Second or third family living in the same house registered under the same or separate register of electors at least three years prior to the date of the order published under the section 2 notice of land acquisition under the LAA.

Tenants and Lessees: Occupants that have legally taken any land or properties or both on rent or lease for a specific period, with registered papers recording agreed terms and conditions of the tenancy and/or leasehold as permitted under the law.

Vulnerable Groups: People who, by virtue of gender, ethnicity, age, physical or mental disability, economic disadvantage, or social status, may be more adversely affected by resettlement than others and who may be limited in their ability to claim or take advantage of resettlement assistance and related development benefits. This category specifically refers to families supported by women and not having able bodied male members who can earn; families of physically or mentally challenged, very old, and infirm persons, who are not able to earn sufficiently to support the family; and families that are very poor and recognized by the government as living below the poverty line.

1. INTRODUCTION

1.1 Background

Climate-related hazards pose a significant threat to economic and social development in Sri Lanka. To address the recurring impacts of climate-induced disasters, the Government of Sri Lanka (GoSL) has set a high priority for disaster risk management in its Vision 2025⁴, the GoSL's latest development planning document. Earlier, in 2014, the GoSL had designed the Comprehensive Climate and Disaster Resilience Program (CCDRP), which aimed at fundamental changes in and mainstreaming of disaster risk management (DRM) practices in priority sectors to improve the resilience of the country. Likewise, in 2016, the GoSL also introduced the National Adaptation Plan⁵ (NAP 2016) which offers a broad outline of the observed and projected climatological changes in Sri Lanka.

The Ministry of Irrigation, Water Resources, and Disaster Management (MIWRDM) is the primary government agency mandated to provide policy guidance and oversight for disaster management in the country. The MIWRDM is currently carrying out comprehensive flood and drought risk modelling in ten river basins⁶ which are most vulnerable to flood and drought risks under the ongoing Climate Resilience Improvement Project (CRIP) funded by the World Bank. The modelling is leading to the development of basin level flood and drought risk mitigation investment plans. The MIWRDM also plans to extend the basin planning to carry out feasibility studies of the most urgent flood risk interventions in critical basins, beginning with the studies for the two reservoirs of the upper Kelani basin recommended in the basin planning for the Kelani basin. Flood and drought risk modelling are also planned for several other basins, and the MIWRDM plans to prepare investment plans for those basins as well.

To further enhance Sri Lanka's climate and disaster resilience, the World Bank is supporting the GoSL with a multi-phased programme, the Climate Resilience Multi-Phase Programmatic Approach (CRes MPA), to be implemented in three phases over a period of eight years as follows: 1) Flood Early Warning and Upper Kelani Basin Flood Risk Mitigation Project; 2) Kelani Basin Flood Risk Mitigation Project; and 3) Mundeni Aru Basin Flood Risk Mitigation Project.

The first phase of the CRes MPA phase will seek to enhance the capacity of the GoSL to forecast and warn flood risks, and increase the flood mitigation capacity in the Kelani river basin, and will involve: 1) comprehensive structural and non-structural flood risk mitigation investments in the Kelani river basin; 2) the modernization of hydro-meteorological information and services, forecasting and early warning systems, and improved dissemination of weather, climate and hydrological forecasts, warnings, and advisory information to key end-users and communities; and 3) the preparation of real-

⁴ http://www.pmoffice.gov.lk/download/press/D00000000061_EN.pdf

⁵ National Adaptation Plan for Climate Change Impacts in Sri Lanka, 2016-2025, Climate Change Secretariat, Ministry of Development and Environment, (National Designated Entity for UNFCCC), Sri Lanka, 2016

⁶ The ten river basins are Kelani ganga, Attanagalu Oya, Mahaweli ganga, Malwathu oya, Gin ganga, Nilwala ganga, Kala oya, Deduru oya, Maha oya and Gal oya. Of these, the Mahaweli river basin, Attanagalu Oya basin, Kelani river basin, and Mundeni Aru basin, have been identified on a priority basis to mitigate the risks.

time flood operational guidelines and the establishment of institutional arrangements and capacity for early warning and flood risk management.

The city of Colombo, which is the economic capital of the country, is located within the Kelani River Basin (KRB). The flood risk mitigation in Colombo and in the lower reaches of the Kelani river (especially from Hanwella to the river mouth) is considered one of the key intervention areas under the Cres MPA. Accordingly, the proposed flood risk mitigation interventions in the KRB are to be implemented in two stages as follows:

Stage 1: The construction of flood embankments from Hanwella to the river mouth, including the tributaries entering the main river channel, plus a combination of embankments, gates, and pumps to protect the land adjacent to the tributaries. The planned level of protection for Stage 1 is the 1:50 year return period.

This will sequentially involve:

- (1) The construction of flood embankments along both river banks of the main river channel; pump houses and flood gates at confluence of tributaries; and river bank protection works between Hanwella bridge to Kaduwela for a length of approximately 12 km;
- (2) The construction of flood embankments along both river banks of the main river channel; pump houses and flood gates at confluence of tributaries; and river bank protection works between Kaduwela to the river mouth for a length of approximately 23 km;
- (3) The construction of flood embankments and associated works upstream of Hanwella for a distance of 12 km on the right bank up to Pugoda and for a distance of about 9 km on the left bank up to Ranwala.

Stage 2: The construction of two reservoirs (Wee Oya and Ruecastle) in the mid-upper basin to capture the flood waters generated in the upper catchment to bring the full level of protection close to a 1:100-year return period, once both Phase 1 and 2 in Stage 1 is completed.

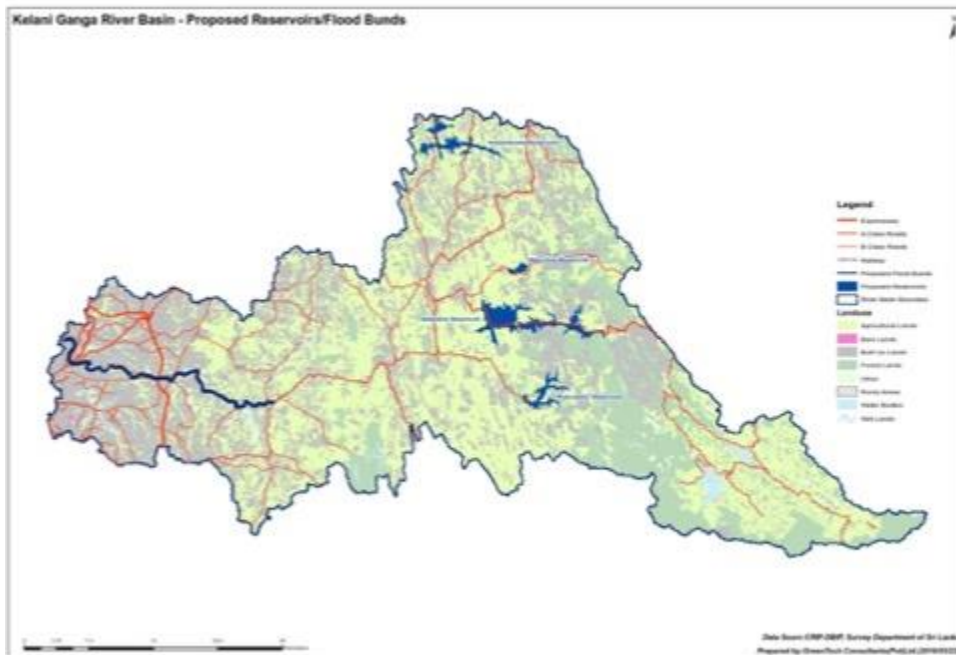
The proposed interventions planned in the KRB are graphically presented in **Figure 1** (Interventions planned under CRes) and **Figure 2** (Proposed embankments/flood bunds of lower Kelani Basin Area).⁷ The primary objectives of the Kelani flood risk mitigation strategy, as concluded from preliminary analysis and stakeholder consultations, are to:

- Protect the lower Kelani basin for a 1:100 years return period. This is appropriate for a large, fast-growing city, and economic center like Colombo; and
- Minimize the displacement of people in order to avoid or reduce long delays in project implementation, and reduce the cost involved in retrofitting extensive flood mitigation

⁷ MIWR&DM has hired an international consultancy firm (Atkins UK Ltd.) to prepare these basin-wide flood and drought risk mitigation investment plans for KRB.

interventions in the most densely populated areas of Colombo, as well as the social and environmental impacts of involuntary resettlement.

Figure 1: Interventions planned under CRes MPA



(Source: CRIP DBIP, 2017)

Figure 2: Proposed embankment/ flood bunds of lower Kelani basin area



1.2 Objectives of the Strategic Social Assessment

Based on the nature of the proposed interventions, as well as the present density of settlements and economic activities in the lower reaches of Kelani river (especially from the Hanwella bridge up to the river mouth), implementation of these interventions is likely to lead to many socio-economic impacts, some of which might be irreversible in nature. Accordingly, a Strategic Social Assessment (SSA) has been planned at the initial stage of the project preparation to ensure that social considerations and concerns are appropriately and adequately integrated in the prioritization, investment decisions, planning, and implementation of structural and non-structural interventions for flood and drought risk mitigation proposed in the basin investment plans. It is anticipated that the findings and recommendations of the SSA would also provide vital information required by the GoSL in putting in place required legal, policy, and institutional mechanisms for flood and drought risk mitigation.

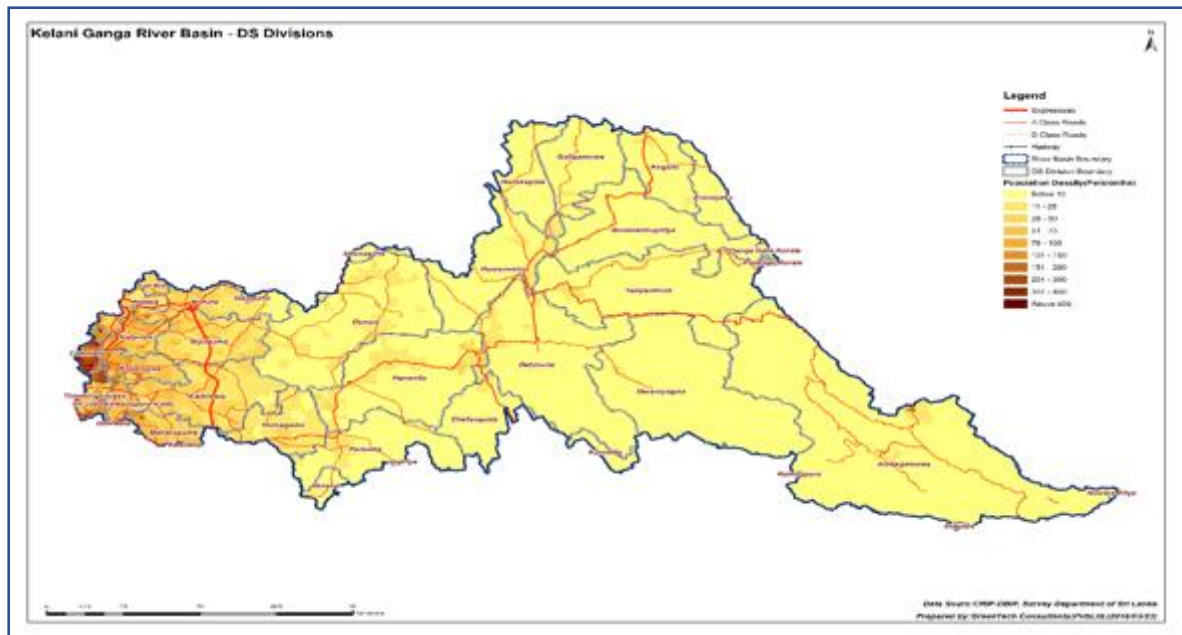
Specifically, the key objectives of the SSA are to:

- Provide a broad socio-economic baseline of the KRB intervention areas, including demographic, social, cultural, historical, political, institutional, ethnic, and development dimensions;
- Identify, assess, and describe the likely social impacts in implementing the basin investment plans, including the physical and economic displacement related constraints bearing on the implementation of any related structural and non-structural interventions;
- Provide the GoSL agencies and development partners with relevant knowledge and information to assess the adequacy of social considerations and safeguard measures to be incorporated with the proposed interventions of the basin investment plan;
- Identify relevant stakeholders, carry out stakeholder assessment and consultations regarding DRM investment planning, impact assessment, and mitigation planning;
- Assess the degree to which the existing policies, laws, regulations, and the institutional capacity of the GoSL (more specifically of the project implementing agency) to address major social challenges related to proposed flood and drought interventions;
- Recommend (at strategic level) measures to avoid, minimize, and mitigate adverse impacts while optimizing beneficial impacts to the communities affected by the proposed interventions.

1.3 Methodology and Description of Tasks

The Kelani river is about 145 km in length and is the fourth longest river in the country. It has the seventh largest catchment area and covers about 2,300 km². Starting from the Sri Pada mountain range, it flows in a westerly direction through or bordering the Districts of Nuwara Eliya, Kandy, Ratnapura, Kegalle, Gampaha, and Colombo, before discharging to the sea at Mattakkuliya in Colombo. The river provides 80% of the drinking water needs of Colombo. In addition, the river is used for transport, fisheries, sewage disposal, sand mining, and for the production of hydroelectricity.

Figure 3: Divisional Secretariat Divisions within KRB



Below is a description of tasks and the methodology adopted for the preparation of this SSA.

Task 1 – Establish socio-economic baseline conditions: Demographic and social profiles (including total population, sex disaggregated population, population by age, ethnicity, religion, education, and employment) of each of the potentially affected GN divisions were considered for the analysis. Statistical information from the 2012 census survey by the Department of Census and Statistics was used as the base information to forecast the population in the year 2018. The growth of the population was estimated using the following exponential equation:

$$Pop_{Future} = Pop_{Present} \times (1 + i)^n$$

Where; Pop_{future} is the estimated population in year 2018 for a given GN division.

$Pop_{present}$ is the population of year 2012 for a given GN division.

i is the rate (fraction) of population growth of each DSD in which the GN division is located.

n is the number of years between year 2012 and 2018.

Factors, such as housing conditions, energy used for cooking fuel and lighting, availability of sanitary facilities, and access to drinking water sources within the potential project affected areas, were estimated based on the fraction of probable land area impacted in a given DSD and the present number of such facilities in the DSD, as explained in the equation below:

Probable No. of facilities in the impact area	=	No. of facilities available in the DSD	x	Fraction of land impacted on in the DSD
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For the availability of public assets, such as schools, hospitals, roads, registered industries, and registered commercial units, the estimates are based on district level information extracted through the “District Statistical Handbooks” of the Department of Census and Statistics and Resource Profiles of DSDs where available for 2017 or the latest. As far as possible, this information was validated through the Key Informant Interviews (KIIs) with each of the stakeholders/agencies currently active in developmental efforts in the KRB, and the respective communities. Conditions of the natural resources and community placements in the areas of project interventions and overall management of these resources were identified from literature reviews as well as KIIs with officials from relevant government organizations.

The SSA also includes the identification of land use rights of different communities, including ethnic groups (including any traditional use rights) and types of livelihoods. Land use patterns were additionally explored through information available at DS division levels, including ownership of the lands (such as tenancy and share cropping practices), land titling, land transactions, communal ownerships of the lands, and uses of common lands. The history of the basin area, in particular the areas of project interventions, relating to the ancient kingdoms, past natural disasters, evolution of the different social environments through different times were identified through discussions with agencies, such as the Department of Archaeology, the Irrigation Department, and the Disaster Management Center that fall under the MIWRDM. Literature available on websites and print media relevant to the KRB were also considered in preparation of this section of the SSA.

Task 2 – Social impacts analysis of basin DRM investment plan: Preliminary design information available for the proposed interventions under Stage 1 and Stage 2 of the CRes MPA from the design consultants were used to analyse the possible socio-economic impacts of the project. Both beneficial and adverse impacts were assessed in terms of spatial and temporal aspects relating to existing socio-economic conditions in the project area.

Beneficial impacts of the proposed interventions were assessed against the impacts caused due to natural disasters (e.g. floods) using available literature and information obtained through interviews with potential project affected persons. A qualitative analysis was carried out on the physical, economic, and social impacts caused due to significant natural disasters which had occurred in the past and for which literature was available. Information collected from the public was used to determine the needs of the development interventions in this project and to assess the possibility of prioritization of these interventions. The potential adverse impacts of the interventions, including loss of assets, physical and economical displacement, social cultural impacts due to migrant labour, impacts due to vulnerability, and construction related impacts were assessed. Inputs from informal/formal consultations with potential project affected communities were also considered to validate these impacts.

Task 3 – Identification of vulnerable groups and communities: Groups or communities, including households that are extremely poor (below the official poverty line), women headed households, elderly headed households, communities where members are of an ethnic minority and/or any traditionally disadvantaged groups are considered as groups or communities that are vulnerable due to the proposed interventions. Information available at the DS level and information through consultations with the public within the proposed project intervention areas were used to identify any such potential vulnerable groups or communities and assess their vulnerability. The World Bank’s OP 4.10 was considered as a guideline for the identification and assessment of vulnerable groups and communities, especially the presence of indigenous communities, that would be affected due to the project interventions.

Task 4 – Gender analysis: The analysis relating to gender was primarily based on the existing laws and policies of the country on gender, including the Women’s Charter. The assessment also identified how gender issues have been dealt with in the water resources and disaster risk management sectors and their impacts (both beneficial and adverse). Barriers and challenges for women participation in DRM investment planning and implementation were also assessed using KIIs and informal interviews with women in the proposed project areas. Possible entry points and interventions to enhance gender sensitivity, mitigate adverse impacts, promote women’s participation, and maximizing benefits to women were determined using information from KIIs, especially with Divisional Secretaries and discussions with women of the project influence area. Further, the institutional structure of the Project Management Unit (PMU), their capacity, and constraints were assessed using a gender lens, as part of Task 4.

Task 5 – Stakeholder analysis: A stakeholder analysis was carried out to identify the key stakeholders at the national, regional, and basin level. In-depth interviews were carried out with the relevant individuals. A “Stakeholder Positioning Map” was developed to better understand the social and political status of the organizations/stakeholders, roles and responsibilities of stakeholders towards the project, organizational ability to influence the project, the project’s ability to influence organizations, and their knowledge about the CRes MPA.

Task 6 – Legal and institutional framework assessment: Legal and institutional instruments relevant for the proposed interventions under the CRes MPA at the planning, design, and implementation stages were reviewed, providing the following outputs:

- A description of laws and regulations relevant to the proposed interventions;
- Potential impacts/effects of these Acts and policies on the proposed project;
- Analysis of key issues and challenges that could arise in implementing/enforcing such legal provisions (including the capacity of agencies responsible in implementing and enforcing such legal instruments) and how it would affect the progress of the proposed interventions at the project planning, design, and implementing stages.

1.4 Structure of the SSA

Information collected and analyzed in this SSA is presented under the following key topics;

- Introduction and project background (Chapter 1);
- Baseline of socio-economic condition in project affected area (Chapter 2);
- Analysis of social impacts with respect to proposed investment plan (Chapter 3);
- Identification of vulnerable groups and communities (Chapter 4);
- Gender analysis (Chapter 5);
- Stakeholder analysis (Chapter 6);
- An assessment of existing legal and institutional framework (Chapter 7).

2. SOCIO-ECONOMIC BASELINE CONDITIONS

2.1 Historical Context of the Basin and Project Area

The Kelani River Basin, spanning a length of more than 145 kilometres, has very important prehistorical significance. According to historians, the presence of the Kelani river has been a source point for civilization during the long history of Sri Lanka. The basin lies between the two ancient kingdoms of Sri Jayawardanapura Kotte and the Seethawaka Kingdom, and the northern section of the basin belongs to the old Kandyan Kingdom. During the reign of Parakramabahu IX of Kotte Kingdom (1508/09 to 1529), the capital was moved to Kelaniya until 1528. There are archaeologically important sites and monuments in the river basin that date back to the early Anuradhapura era (377 BC to 1017 AD), most of which are monasteries. The river itself has been a main source of transportation, livelihood, and water supply for the communities that settled on its banks. The basin was also an important geographical location during the colonial periods, and the Colombo Fort and Gurubavila Fort, are the most famous examples.

Hanwella, the starting point for the construction of embankments under the proposed project, was an important site for ferry routes that went through the Kelani river. It is believed that King Mayadunne of Seethawaka kingdom made the Gurubebila Fort (also known as the Hanwella Fort) in Hanwella as a form of protection for the ferry route (**Figure 4**). It was subsequently occupied by the Portuguese (1597), Dutch (1684), and English (1786), and the Fort underwent rehabilitations under the different colonizers. The Hanwella Fort is also the location for Hanwella battle during Keerthi Sri Rajasinghe's reign and also under the British-Kandyan war, and it was considered an important location for the respective war strategies. Similarly, the Malwana Fort, at Malwana in the Gampaha District, was constructed by the Portuguese and was used by the soldiers stationed there. Later on, the Fort was occupied by the Dutch and underwent rehabilitation and subsequent abandonment as well. There are folk legends surrounding the Malwana Fort that King Buvanakabahu VII was assassinated at the Fort by the Portuguese.



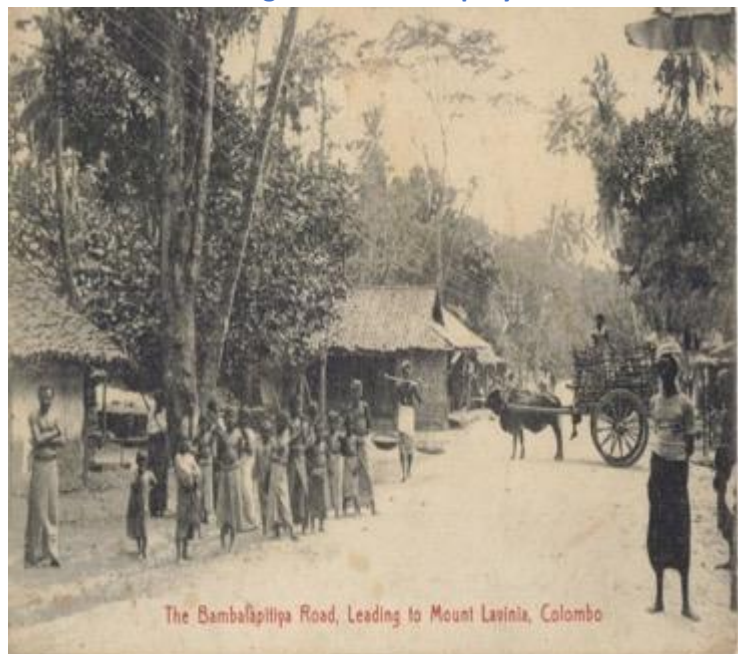
Figure 4: Hanwell Fort in 1736

In medieval literature works of Sri Lanka, 'Sandesa Kavaya', Kelaniya is described as a city of great natural beauty and developments. In Buddhism, it is believed that Lord Buddha visited Kelaniya during the time of war (5th century BC) between two kings (Chulodara and Mahodara) of Naga tribe, and had resolved the conflict. Further, the illustrations in the Kelaniya temple today also provide insights into important events in Sri Lankan history. In the Ramayanaya, the Kelani river is mentioned as the location where Vibeeshana was crowned king after King Ravana, and his palace is believed to have been on the river banks.

Colombo lies in the river basin, and is the largest commercial and administrative hub of the country. 'Kolonna thota' (port on the Kolonne river – the old name for the Kelani river) was an important sea port due to the presence of the natural harbour, as well as its location in the ancient trade route used by the Roman, Arab, Persian, and Chinese trade sailing vessels more than 2000 years ago. Colombo saw first of its development during the era of the Kotte Kingdom, and has been one of the highly populated cities in the country ever since. The Colombo Fort was developed in the 16th century by the Portuguese to fortify their trading post and encompasses the area that now houses the major hotels and presidential palace. The area outside the Fort is now Pettah ('Pita Kotuwa' in Sinhala, which translates directly to 'outer fort'). The Fort underwent sieges during the Sinhalese-Portuguese war and then was conquered by the Dutch East India Company in 1656. The Dutch rehabilitated the Fort, and it became a military strategic point for the confrontations that happened during the Sinhalese-Dutch war. Once the English conquered the Fort, Colombo was transformed into a place of administrative importance and was subsequently named the capital of Ceylon in 1815 during the Kandyan Convention. Once the new administrative legislations were established in 1978, Sri Jayawardenapura Kotte was designated as the commercial capital of Sri Lanka.

Figures 6 to 8 presents maps of the sites with archeological and historical significance within the District Secretariat Divisions (DSDs) impacted due to proposed interventions under the CRes MPA. Notably, there are no sites of archaeological significance in the project areas of Rue castle and Wee Oya reservoirs.

Figure 5: Bambalapitiya in 1910



(Source: Edward Harper, Google)

Figure 6: Sites of archaeological significance (between Kaduwela and the river mouth)

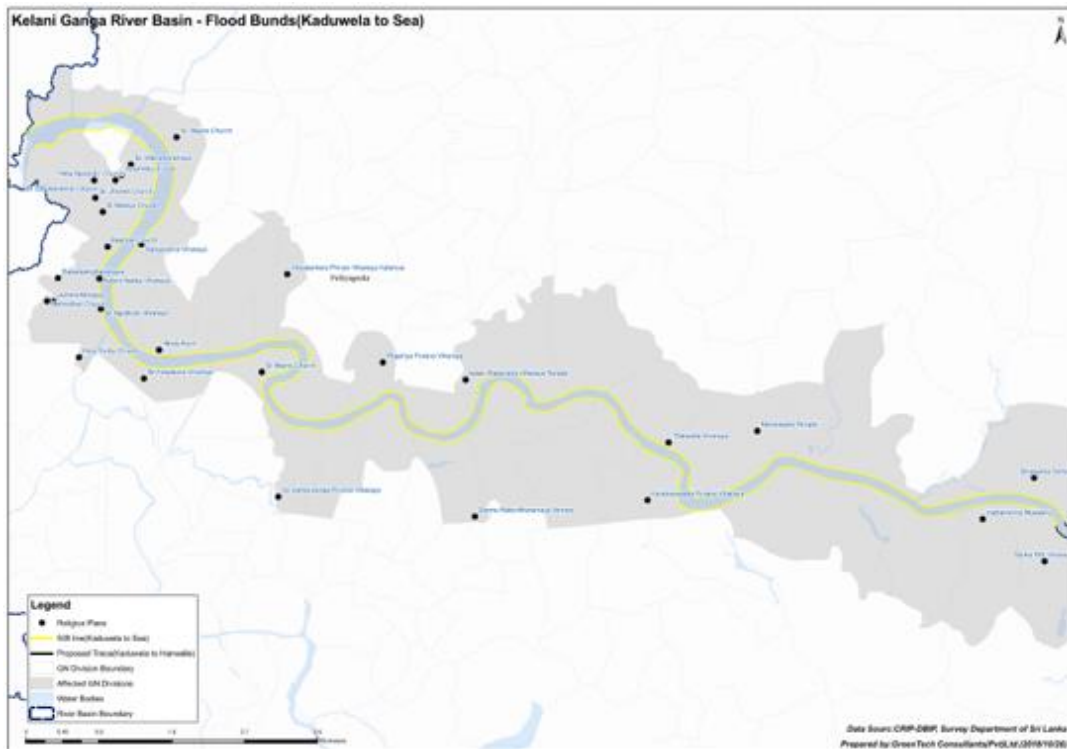


Figure 7: Sites of archaeological significance (between Kaduwela and Hanwella)

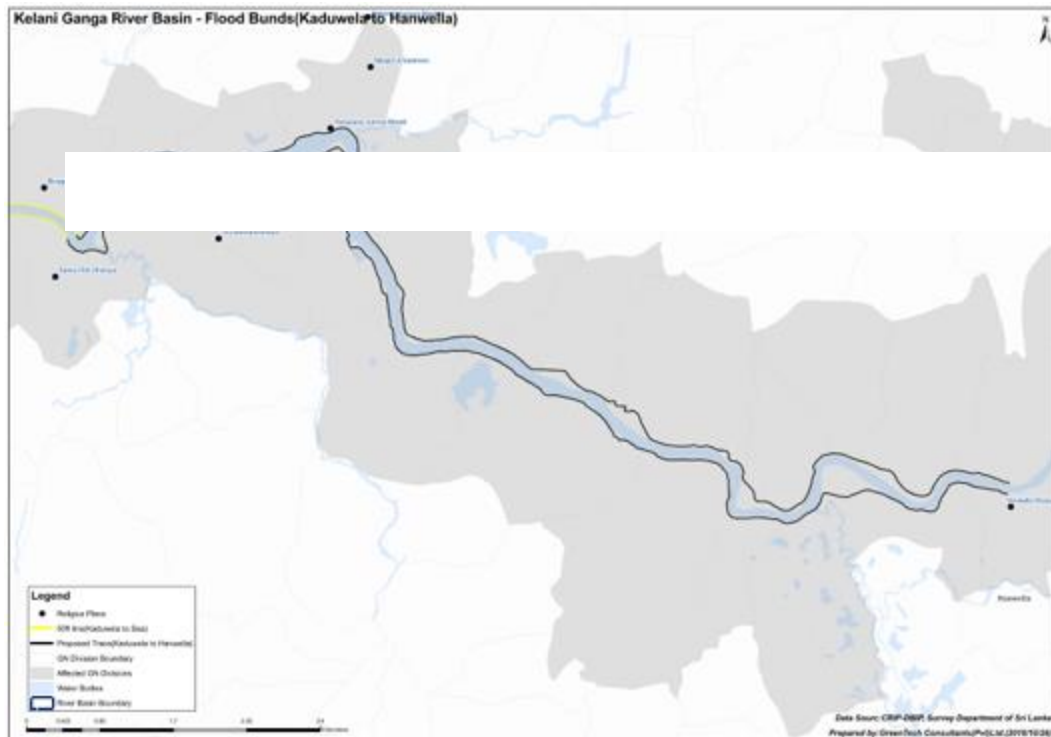
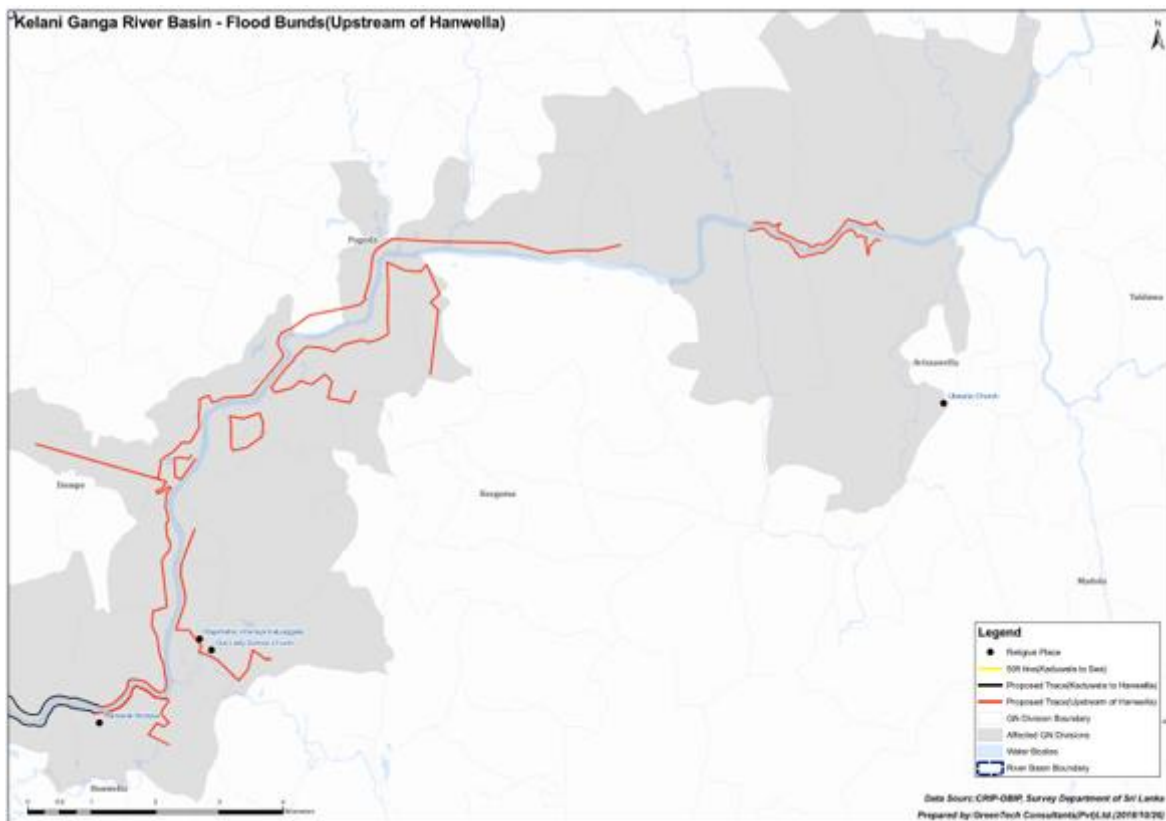


Figure 8: Sites of archaeological significance (between Hanwella and upstream Pugoda)



2.2 Land Use Patterns

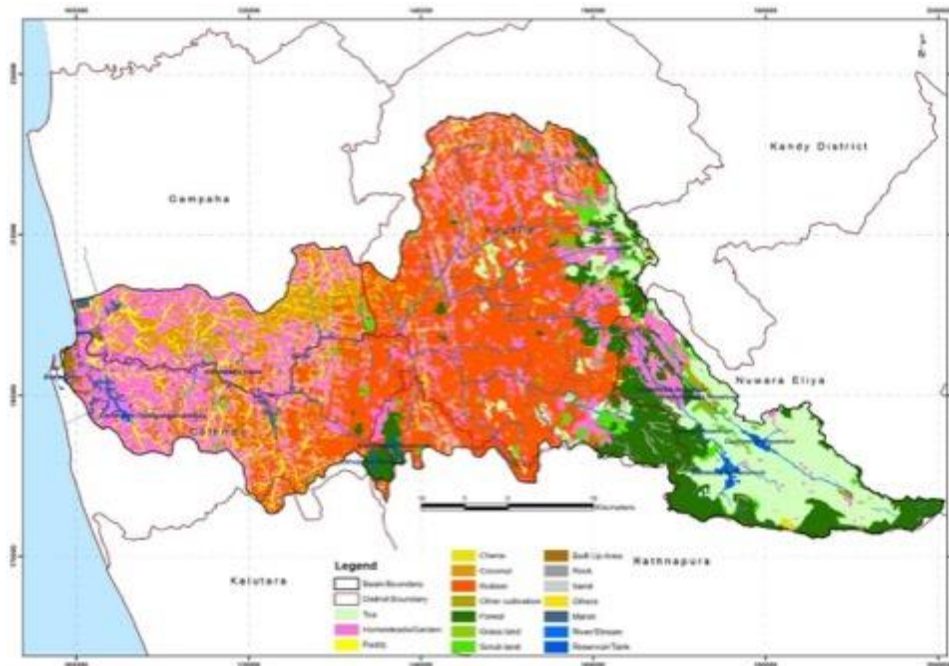
The Kelani River Basin can be divided into three distinct topographical units that encompass three peneplains: lower (below 100m AMSL), middle (100 to 300m AMSL), upper (above 300m AMSL).⁸ This topographical variation occurring from the interior hilly terrain to coastal flat lands has resulted in the Kelani River Basin covering a range of land forms, from hillocks and ridges in its upper reaches to flood plains and coastal plains in the lower reaches. Further, the Kelani river passes through the Wet Zone of the country and is further sub divided into 10 Agro-Ecological Zones (AEZ) covering the low, mid, and up country based on elevation. Elevations of these AEZ varies from almost zero to 2000m, the mean temperature from 13°C to 29°C, and rainfall from 1525 to 3600 mm. Due to this different climatic and topographic variation, entirely different land use systems can be observed throughout the watershed.

The Kelani river is the third largest watershed in the country. The importance of the river, in terms of habitats and biota, is partly due to its spread through a multitude of streamlets and smaller tributaries, which in turn nourishes and creates smaller river basins. It is reported that around 117 micro-catchments are supported by the Kelani river. Many of the streams and river networks are lined by strips of riverine vegetation.

⁸ Consulting Engineers & Architects Associated (Pvt.) Ltd (June 2018). Strategic Environmental Assessment of Development of River Basin Level Flood and Drought Mitigation Investment Plans (DBIP), Climate Resilience Improvement Project, The Democratic Socialist Republic of Sri Lanka, Ministry of Irrigation & Water Resource Management, p.78.

The lower reaches of the basin include areas within the Colombo District comprising low lying flood retention zones, which are essentially marsh habitat. The sustenance of these urban wetlands is heavily dependent on the inflow from the Kelani river, but these lowland wetlands are now severely fragmented. **Figure 9** shows the land use pattern in the impacted area.

Figure 9: Land Use Map of the Kelani River Basin



Source: CEA, Strategic Environmental Assessment of Development of River Basin Level Flood and Drought Mitigation Investment Plans-Kelani River Basin, June 2018.

As can be seen from the figure above, apart from the natural land use types, different types of anthropogenic land use types are also found in the area. In general, the land use pattern in the Kelani River Basin involves two distinctive forms—the upper catchment area is more rural and is primarily plantation and agricultural land, and the lower catchment area is built-up land with modern towns and cities. There are rural home gardens (mainly in the mid and upper reaches), settlements in the lower reaches, and plantations consisting of paddy, rubber, tea and other minor crops. Several large and medium scale privately owned tea and rubber estates are located in the Kelani River Basin alongside a large number of small and medium scale plantations of coconut and cloves. Rambutan and durian are two of the major fruit crops grown in the Kelani valley, while banana, pineapple, and a range of other vegetables are grown in the Kelani River Basin. About 34 % of the Kelani River Basin falls within the Western Province, where the population density is at its peak. In comparison to the other areas of the basin, in this area, a significant proportion of the natural habitats have been cleared for human settlements, roads, and infrastructural facilities.

The majority of land is used for non-traditional export crops (40,894 ha.), rubber plantations (34,764 ha.), home gardens (31,876 ha.), paddy lands (15,643 ha.), coconut (15,480 ha.), buildings (13,070 ha.), and forests (12,998 ha.). A relatively higher percentage of the Montane and Sub-Montane forests are

located in the eastern part of the basin. The large extent of paddy lands, which represent 7.8% of the total area, is found in the medium and lower reaches of the basin. Coconut plantations are around 5%.

Table 1: Land extent and land use patterns in the Kelani River Basin

Type of land	Land Extent in the impacted Area (ha.)			
	Colombo	Gampaha	Kegalle	Total
Irrigated paddy land	1,329	1,532	1,741	4,602
Rain fed paddy land	3,869	3,345	3,827	11,041
Tea	45	-	7,154	7,199
Rubber	11,167	1,066	22,531	34,764
Coconut	1,975	4,476	9,029	15,480
Cinnamon	103	46	-	149
Non-traditional export crops	282	72	40,540	40,894
Forests	1,257	540	11,201	12,998
Grass/chena	394	118	3	515
Mashes and mangroves	1,501	725	-	2,226
Home garden	12,917	16,980	1,979	31,876
Reservoirs	1,151	1,129	495	2,775
Buildings	7,553	2,353	3,164	13,070
Sand and mountains	40	-	-	40
Abandoned land	403	360	1,159	1,922
Sacred places, roads, cemetery etc	3,316	-	2,007	5,323
Overall Land extent	47,302	32,742	104,830	184,874

(Source: Department of Census and Statistics)

Notably, except for areas near Colombo, large scale human settlement activities have historically not taken place in this area due to the flood risks. This situation changed during the last three or four decades with the establishment of the Free Trade Zone (FTZ) in Biyagama and due to the development activities taking place around Baththaramulla (following the declaration of Sri Jayawardanapura Kotte as the administrative capital of the country). The construction of factories and warehouses took place in Kelaniya, Malwana, Kaduwela, and Hanwella outside the Biyagama FTZ. As a result, this area has been transformed in to a dominantly industrial, service, and residential region, with human settlements replacing the previously agriculture dominant areas. Such changes in land use has

adversely affected paddy cultivation, as many farmers are giving up farming and are employed in factories, building sites, and similar economic activities.⁹

Many land owners have already sold out, at least a part of their lands, including paddy lands, for other types of development activities. Many of these lands have developed haphazardly with no consideration of the environmental sustainability of the area. In many instances, no formal approvals are obtained from the relevant agencies. Roads have been constructed by filling drainage paths, reservations have been encroached, and the walls of houses and work places have become barriers to rapid water out flow during rainy periods. The cumulative result of these informal activities is heavy property damage even after a minor flood. The flood in May 2016 is a typical example in this regard, which caused heavy damage to the area, even though was recorded as a minor flood.

2.3 Socio-economic Profile of the Kelani Basin Area

2.3.1 Districts, DSDs, and GNDs in the basin

The Kelani River Basin area traverses seven districts, 38 Divisional Secretariat Divisions (DSDs), and 1,091 Grama Niladhari Divisions (GNDs) covering 234,010 hectares of land. Although there are 1,091 GNDs in the Kelani River Basin area, only 98 GNDs (from the 13 DSDs of the Colombo, Gampaha, and Kegalle Districts) are affected by the CRes MPA, as mentioned in Chapter 1. The area was determined through a google topographic survey conducted as part of the feasibility study for the interventions under the CRes MPA. **Table 2** presents the total land area in the respective Districts and the land extent inside the Kelani River Basin area. The land extent in each DSDs is presented in **Table 1 of Annex 1**. The Colombo and Kegalle Districts have more than 50% of their land area located within the river basin, while the Kandy and Kalutara Districts records the least.

With regards to the socio-political structures, the Districts are governed by a District Secretary, who is the central government representative within the administrative boundaries of a given District. This administrative division, called the Divisional Secretariat Division (DSD) is further sub-divided into micro-administrative units called Grama Niladhari Divisions (GND). GNDs are administered by village heads called Grama Niladharis. Further structures exist by way of Pradeshiya Sabhas (comprising people’s representatives) at the local level, Provincial Councils (provincial legislative bodies) at the Provincial level, and Parliament at the national level.

Table 2: The land extent of the Kelani River Basin Area

District	Total area (ha)	Area inside the basin (ha)	% of area inside the basin
Colombo	67,996.76	45,854.07	67.44%
Gampaha	141,847.28	33,485.59	23.61%
Kalutara	164,644.77	1,144.55	0.70%
Kandy	192,402.38	390.20	0.20%

⁹ Source: CEA, Strategic Environmental Assessment of Development of River Basin Level Flood and Drought Mitigation Investment Plans-Kelani River Basin, June 2018.

District	Total area (ha)	Area inside the basin (ha)	% of area inside the basin
Nuwara-eliya	174,534.77	43,141.33	24.72%
Ratnapura	328,877.54	7,146.69	2.17%
Kegalle	166,099.25	102,848.32	61.92%
Overall	1,236,402.75	234,010.74	18.93%

(Source: GIS Survey by the consultant)

2.3.2 Project affected area

Table 3 presents the number of GNDs within each District, and the number of GNDs affected, due to proposed interventions. **Table 4** presents the land extent affected in each of the three Districts where the proposed interventions will be implemented under the MPA. Details of the impacted GNDs and DSDs in the following districts are presented in **Table 2 of Annex 1**.

Table 3: Number of GNDs affected in each District

District	Total Number of GNDs	Number of impacted GNDs	% of GNDs
Colombo	351	38	10.8%
Gampaha	342	46	13.5%
Kalutara	12	0	0.0%
Kandy	5	0	0.0%
Nuwaraeliya	69	0	0.0%
Ratnapura	50	0	0.0%
Kegalle	262	14	5.3%
Overall	1091	98	9.0%

(Consultant's computations)

Table 4: Summary of land area and impacted area in each District

District	Total land area of the DSDs of the impacted GNDs (ha)	Land area of the impacted GND inside the basin (ha)	% of land area of the impacted GND inside the basin
Colombo	67,996.76	6,979.29	10.26%
Gampaha	141,847.28	4,809.20	3.39%
Kegalle	166,099.25	9,145.37	5.51%
Overall	375,943.30	20,933.85	5.57%

(Source: GIS Survey by the consultant)

As stated earlier, although there are 1,091 GNDs in the Kelani River Basin area, only 98 GNDs (of the 13 DSDs of the Colombo, Gampaha, and Kegalle Districts) are affected by CRes MPA. Out of these 98 GNDs, the expected impact on the GNDs are:

- 36 GNDs due to proposed embankments from Kaduwela to the sea mouth;
- 21 GNDs due to embankments from Kaduwela to Hanwella;
- 29 GNDs due to embankments upstream of Hanwella;
- Eight GNDs due to the construction of the Rue Castle reservoir;
- Four GNDs due to construction of Wee Oya reservoir.

The names of these impacted GNDs (along with their respective DSDs and Districts) is presented in **Table 3 of Annex 1**. The Kegalle District is expected to be the highest impacted District with respect to land extent (9,145.37 ha). However, the Colombo District records the highest percentage of affected land from total land covered by the District (10.26%).

2.3.3 Population and Household Characteristics

2.3.3.1 Households in basin area

Approximately 76,300 households live in the impacted area of the Kelani River Basin. This constitutes 15% of the total number of households in the respective DSDs of the various Districts in the Kelani River Basin Area.

Table 5: Number of households in the impacted Area

District	No of households in the DSD	No of households in the impacted area
Colombo	270,052	46,617
Gampaha	166,269	22,804
Kegalle	57,706	6,880
Overall Total	494,027	76,300

(Source: Department of Census and Statistics)

The largest number of households are located in the Kaduwela DSD (12,686 households) and Kolonnawa DSD (12,343 households) in the Colombo District. The second largest number are in the Kelaniya DSD (8,992 households) in the Gampaha District and the Deraniyagala DSD (2,832 households) in the Kegalle District. However, in terms of percentages, the largest percentage of households (61%) are located in the DSDs in the Colombo District. The lowest percentage (9%) are in the DSDs in the Kegalle District. The breakdown of the data according to the DSD is provided in **Table 4 of Annex 1**.

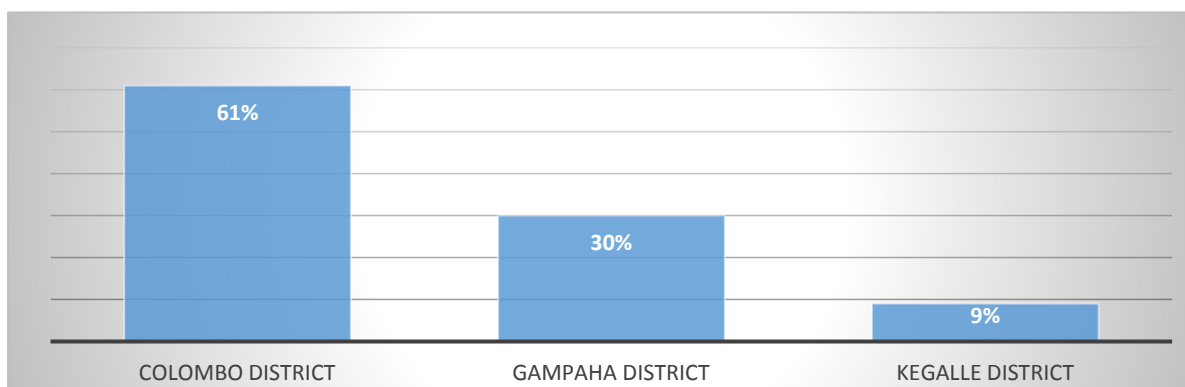


Figure 10: Percentage of households in the basin area

(Source: Department of Census & Statistics)

2.3.3.2 Population distribution

As explained in Chapter 1, the 2012 census was used to extrapolate (predict) the population distribution for the year 2018. The highest population, including those that would be affected by project interventions, is estimated to be in the Colombo District, and the lowest in the Kegalle District. The summary of estimated results is presented in **Table 6**. The percentage of females in the project area is slightly higher than the percentage of males, which also reflects the overall gender distribution across Sri Lanka (**Figure 11** presents the overall male to female ratio in the three Districts affected).

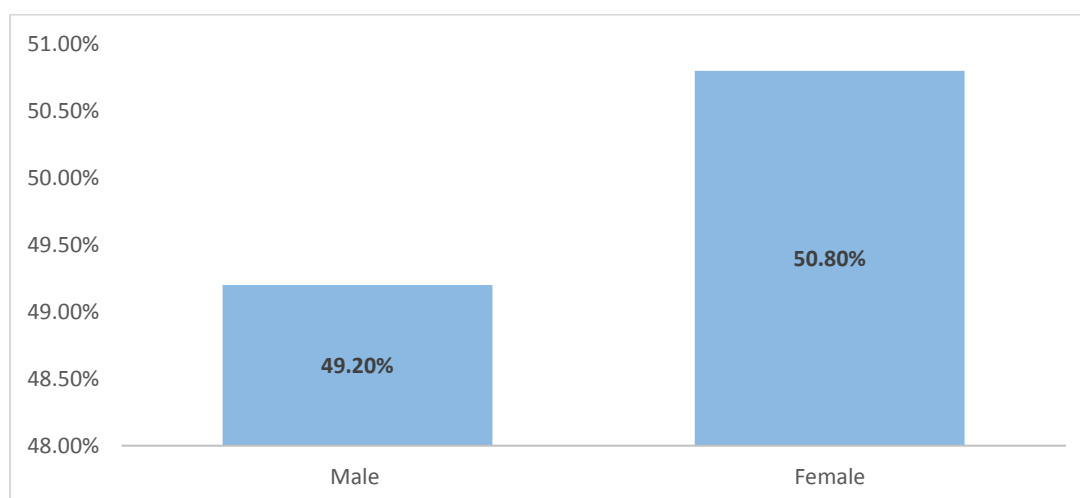
Table 6: Estimated population in the three affected districts in Kelani River Basin Area

District	Total estimated population of the entire DSDs (2018)	Total estimated population of impacted area (2018)	Male	Female
Colombo	1,191,051	206,543	101,908	104,634
Gampaha	722,151	99,184	48,629	50,555
Kegalle	221,154	26,979	13,003	13,976
Overall	2,140,356	332,706	163,540	169,165

(Source: Department of Census & Statistics with estimated data)

Table 5 in Annex 1 presents DSD-wise population estimates for the year 2018. Based on the estimates, the highest population is recorded in the Kolonnawa DSD (55,429), followed by the Colombo DSD (53,070), and the Kaduwela DSD (51,978) in Colombo District. The highest estimated population in the Gampaha District was recorded in the Kelaniya DSD (40,039), followed by the Dompe DSD (32,116), and the highest estimated population in the Kegalle District was recorded in Deraniyagala DSD (11,123).

Figure 11: Overall gender status in the affect DSDs



2.3.3.3 Age distribution

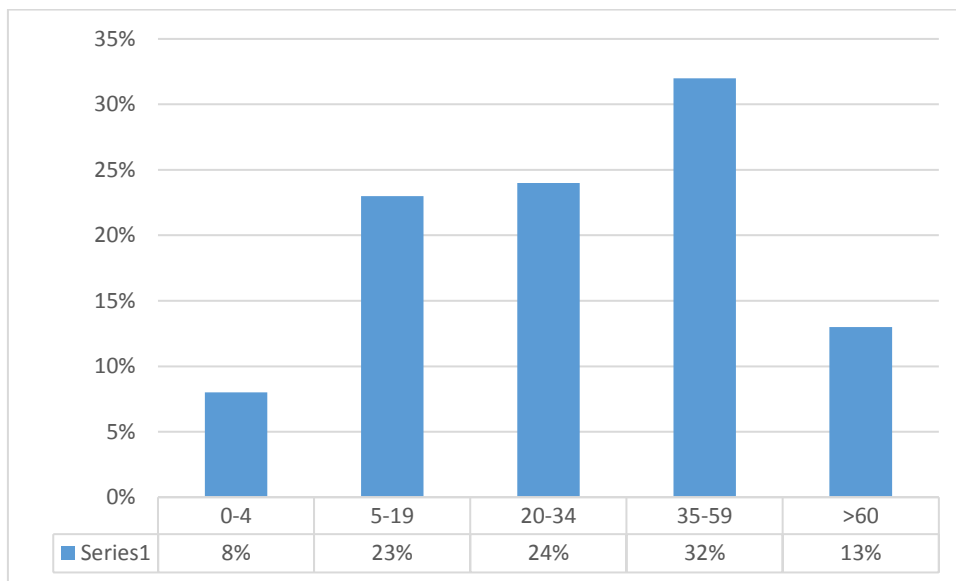
Table 7 and **Figure 12** below presents the distribution of the population in project area with respect to age.

Table 7: Age groups of the population in the impacted area in the Kelani Basin Area

District	Total	0-4	5-19	20-34	35-59	> 60
Colombo	206,543	16,431	48,372	49,686	66,657	25,398
Gampaha	99,184	7,493	22,260	25,219	31,526	12,687
Kegalle	26,979	2,286	6,272	6,119	8,270	4,032
Overall	332,705	26,209	76,903	81,024	106,453	42,116

(Source: Department of Census & Statistics)

Figure 12: Population by age group in Kelani basin



(Source: Department of Census & Statistics)

Based on the above information, the highest percentage of individuals in the project area represent the age group 35-59 years (32%), while the lowest of 8% represent the age group of 0-4 years. Of the affected population, 23% represent the age group between 5-19 years, considered as children or the population attending primary and secondary education; and 24% are in the age group of 20-34 years (young adults). The percentage of population above 60 years is 13%, considered part of the dependent population. The DSD-wise data is provided in **Table 6 Annex 1**.

2.3.3.4 Ethnic distribution

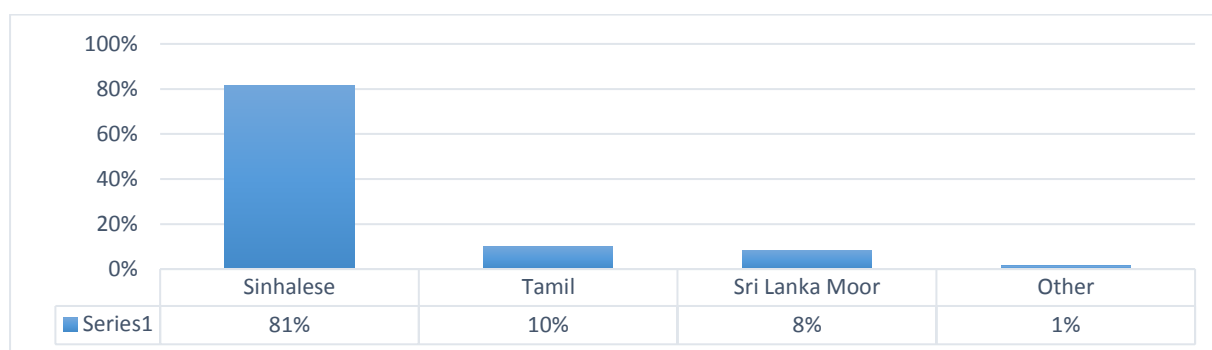
Table 8 and **Figure 13** below presents information on the different ethnic groups living in the three Districts in the Kelani River Basin.

Table 8: Ethnicity of the population in the impacted area

District	Total population in impacted area	Sinhalese	Tamil	Sri Lanka Moor	Other
Colombo	206,543	158,005	23,133	22,100	3,305
Gampaha	99,184	89,761	3,868	4,166	1,289
Kegalle	26,979	23,067	1,969	1,916	27
Overall	332,705	270,833	28,970	28,181	4,621

(Source: Department of Census & Statistics)

Figure 13: Ethnicity of the population in the impacted area



(Source: Department of Census & Statistics)

The impacted area in the Kelani basin is dominated by the Sinhalese population (81%). More specifically, the Sinhalese population represents 77% of population in the Colombo District, 91% in the Gampaha District, and 86% in the Kegalle District. The cumulative average Tamil population is 10%. They represent 11% of the total population in the Colombo District, 4% in the Gampaha District, and 7% in the Kegalle District. While the cumulative average of Sri Lanka Moors population is 8%, their proportion vary across the Districts: 12% of the population in the Colombo District, 4% in the Gampaha District, and 7% in the Kegalle District. Other than these three major ethnic groups, there are a small number of the population belonging to Burgher, Malay, and Sri Lankan Chetty, mainly within the Colombo District (these groups been categorized as ‘other’). DSD-wise data on ethnicity is provided in **Table 7 of Annex 1**.

2.3.3.5 Religious distribution

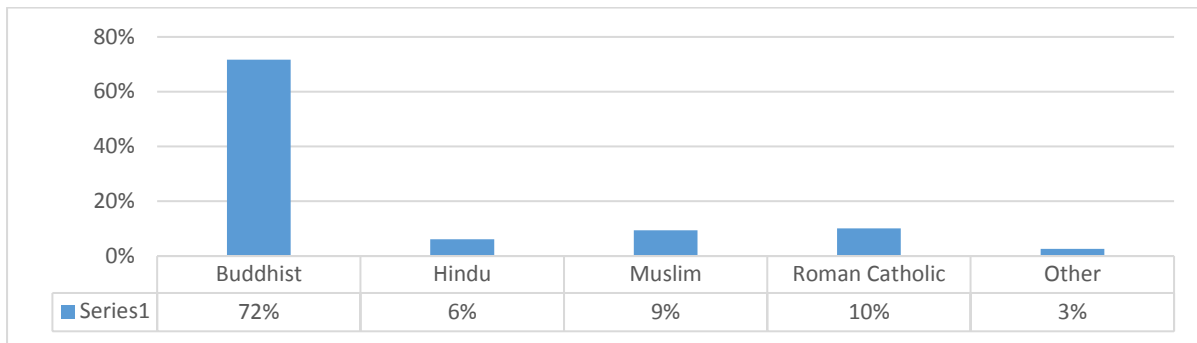
Information about a population’s religious backgrounds is an important social factor to be considered in the implementation of projects, particularly due to the influence religion can have on the social and cultural activities of an area. **Table 9** below summarizes the religious composition in the project affected areas in the Colombo, Gampaha, and Kegalle Districts, while **Figure 14** is a graphic representation of the situation in each District with respect to religion.

Table 9: Religion of the population in the impacted area

District	Total population in impacted area	Buddhist	Hindu	Muslim	Roman Catholic	Other
Colombo	206,543	144,993	16,523	24,372	14,458	6,197
Gampaha	99,184	70,718	2,281	4,860	19,341	1,984
Kegalle	26,979	22,770	1,754	1,969	0	486
Overall	332,705	238,481	20,558	31,201	33,799	8,667

(Source: Department of Census & Statistics)

Figure 14: Religious distribution of the population in the Kelani Basin Area



(Source: Department of Census & Statistics)

The impacted area of the basin is dominated by the Buddhist population (overall average of 72% of the population). Buddhists constitute 70% of the population in the Colombo District, 71% in the Gampaha District, and 84% in the Kegalle District. The overall average Hindu population in the three Districts is 6%, and they represent 8% of the population in the Colombo District, 2% in the Gampaha District, and 7% in the Kegalle District. The overall average of the Muslim population in the three Districts is 9%, and they represent 12% of the total population in the Colombo District, 5% in the Gampaha District, and 7% in the Kegalle District. The overall average Roman Catholic population is 10%, and they represent 7% of the total population in the Colombo District and 20% in the Gampaha District (no Roman Catholic persons were identified in the Kegalle District). **Table 8 in Annex 1** presents DSD-wise information on religion.

While the Sinhalese/Buddhist culture dominates the basin area, the Tamil/Hindu culture is more pronounced in the plantation area. Further, while relatively small, the Muslim culture is very strong in the limited areas where the Muslims live.

2.3.4 Socio-economic status of households

2.3.4.1 Land tenure and ownership

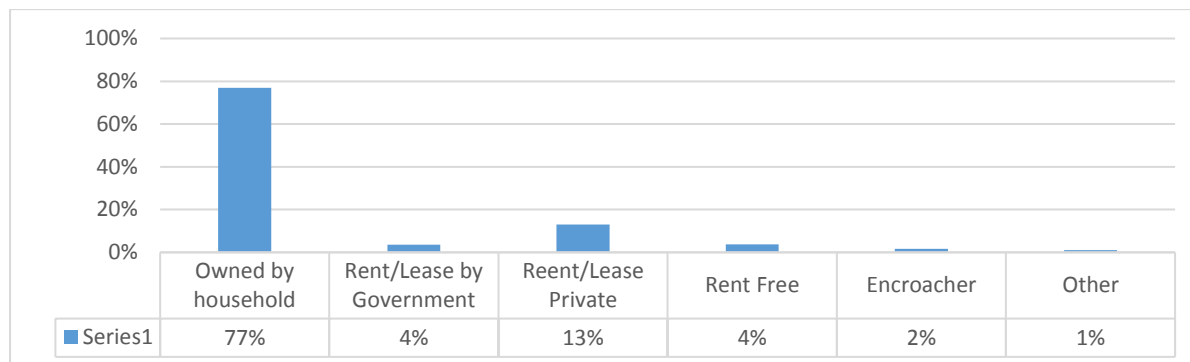
Literature on land ownership patterns in Sri Lanka reveals that, before the colonial period, the land of the country belonged to the Kings. Through Sannasa (a deed of gift) or by Order (verbally), the King gave land parcels to temples, heads of council, or village heads. This gift of land included all resources (including human resources) which the recipient of the gift was entitled to. Some of the recipients in turn had to return a share of seasonal or annual produce from such land to the treasury of the kingdom.¹⁰ With the British colonization in 1815, the Crown lands Ordinance was introduced, where any land that could not be identified with clear ownership was taken under government property as a Crown Land. For land where ownership was able to be proved, title deeds were given.

At present, the ownership or land tenure in the project impacted area can be classified as: owned by household (with title deed or land certificates issued by the government); leased or rented in

¹⁰ This has been the practice in the kingdoms of Sri Jayawardenapura, Raigama, Seethawaka, and Kandy related to Kelani River Basin.

government or private land; rent free occupied land¹¹; and encroached land. Specifically, 77% of land in the project area is owned privately, 13% is rented from private owners, 4% is rented or leased from the government, 4% is occupied rent free, and 2% is encroached land.

Figure 15: Land tenure in the project area



(Source: Department of Census & Statistics)

Table 10: Number of households and land tenure in the impacted area

District	Total No. of households	Owned by household	Rented/leased government	Rented/leased private	Rent free	Encroached	Other
Colombo	46,617	35,576	2,041	6,503	1,377	670	449
Gampaha	22,804	17,696	544	3,169	574	555	265
Kegalle	6,880	5,483	153	240	849	69	86
Overall	76,300	58,756	2,738	9,912	2,800	1,294	800

(Source: Department of Census & Statistics)

At the DSD level, the ownership status is as follows:

- The highest, 91% houses (6,822) in the Dompe DS Division in the Colombo District, are privately owned by the households themselves;
- The highest of 9% government owned rented houses (941) are in the Colombo DS Division in the Colombo District;
- The highest of 20% privately owned rented houses (1,024) are in the Biyagama DS Division in the Gampaha District;
- The highest of 16% rent free houses (476) are in the Deraniyagala DS Division in the Kegalle District;
- The highest of 5% houses on encroached land (132) are in the Kelaniya DS Division in the Gampaha District.

¹¹ Land owned by the state without a payment of a rent or with exemption of rent.

The DSD-wise data is provided in **Table 9 of Annex 1**.

2.3.4.2 Sources of livelihoods

The main sources of livelihoods in the impacted area broadly include: employment in the public sector, private sector, and semi-government sector; agriculture, including paddy farming; home gardening; crop harvesting of non-traditional export crops (including pepper, coffee, cocoa, cloves, cardamom, and cinnamon); harvesting of traditional crops (including tea, rubber, and coconut); livestock farming; vegetable cultivation; technical occupations, including iron works, welding, repairing of equipment and utilities, and electrical and electronic repairs; labour work on daily wages or plantation workers; self-employment, including tailoring, retail selling, making different non-traditional products, and making food items; and sand mining. Notably, in the majority of cases, these sources of income, as well as the patterns of livelihoods, have been retained for generations and continue to date.

As shown in **Table 11**, on an average, more than 43% of the households in the project area derive their income from wage earnings, 4% from agriculture, and 54% from non-agricultural activities. Compared to national averages, these figures indicate that a higher proportion of the population in the project area derive their livelihoods from wage income, while a lesser percentage of people rely on agriculture.

Table 11: Proportions of income sources

District	Wages	Agriculture	Non-agriculture
Colombo	43%	1%	56%
Gampaha	45%	4%	51%
Kegalle	42%	6%	52%
Average for 3 Districts	43%	4%	53%
National Level	38%	8%	54%

(Source – Household Income and Expenditure Survey – 2016)

2.3.4.3 Employment levels

Table 12 below presents employment levels of the population (15 years of age and above). For reference, the economically not active population comprises those who are under 15 years of age and over 60 years of age.

Table 12: Employment levels of the population

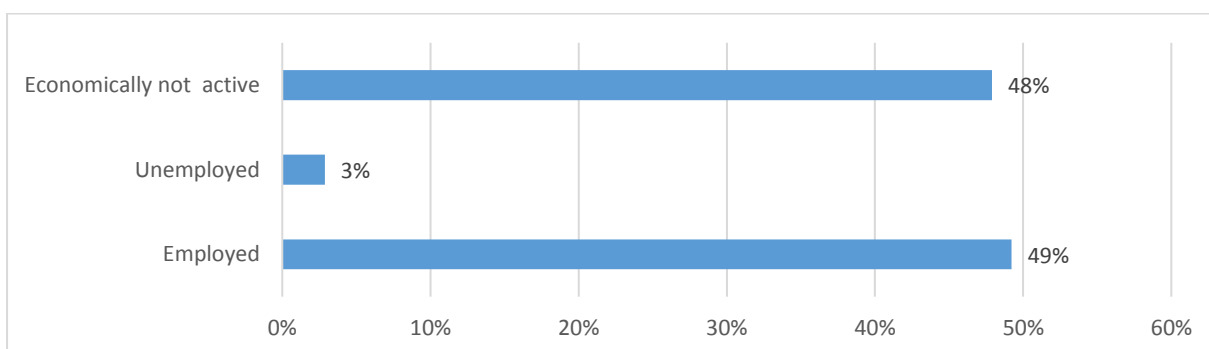
District	Total	Employed	Unemployed	Economically not active
Colombo	157,815	77,819	4,119	75,877
Gampaha	76,968	37,377	2,394	37,197
Kegalle	20,383	10,408	826	9,149

District	Total	Employed	Unemployed	Economically not active
Overall	255,166	125,603	7,339	122,224

(Source: Department of Census & Statistics)

In the impacted area, 49% are employed, 3% are unemployed, and another 48% are economically inactive. In comparison, at the national level, 48.2% of the country’s population are employed, 3.4% are unemployed, and 48.4% are economically inactive. This indicates that the employment trends in the project area are similar to the national averages.

Figure 16: Employment levels found in the basin



(Source: Department of Census & Statistics)

In terms of differences across the various DSDs, the highest portion of the employed population, as well as unemployed population, is found in the Deraniyagala DS Division (53% and 5% respectively) in the Kegalle District. The highest portion of the economically not active population is found in the Colombo DS Division (51%) in the Colombo District. The lowest portion of the employed, unemployed, and economically not active population is found in the Colombo (46%), Kaduwela (47%), and Homagama (2%) DS Divisions in the Colombo District, and Deraniyagala (42%) DS Division in the Kegalle District. The DSD-wise data is provided in **Table 10 in Annex 1**.

2.3.4.4 Income levels

Income levels are only available at the District level¹² and not at the Divisional Secretariat level. As shown in **Table 13**, the average income and expenditure levels of the three project Districts is higher than the national average. While the Gampaha and Kegalle Districts have lower income and expenditure levels, the average for the project area is highly skewed by the data from the Colombo District.

¹² Household Income and Expenditure Survey 2016 – Department of Census and Statistics

Table 13: Income and expenditure levels of the districts in the impacted area

District	Income per month (SLRs.)	Expenditure per month (SLRs.)
Colombo	104,581	90,670
Gampaha	72,834	64,563
Kegalle	51,865	48,511
Avg. for 3 project districts	76,427	67,915
National Level	62,237	54,999

(Source – Household Income and Expenditure Survey – 2016)

2.3.4.5 Educational levels of the population

Table 14 below presents the District-wise level of education attained by the population in the affected areas. The majority (approximately 97%) of the population is educated, and only 3% have no schooling/formal education attainment.¹³ Slightly less than half of the population is qualified with Ordinary Level Certificates (O Level), Advance Level Certificates (A Level), and degree certificates or above. While the number of persons who have not attended schools at all is somewhat high, as a percentage, it is still lower when compared to the national level data.

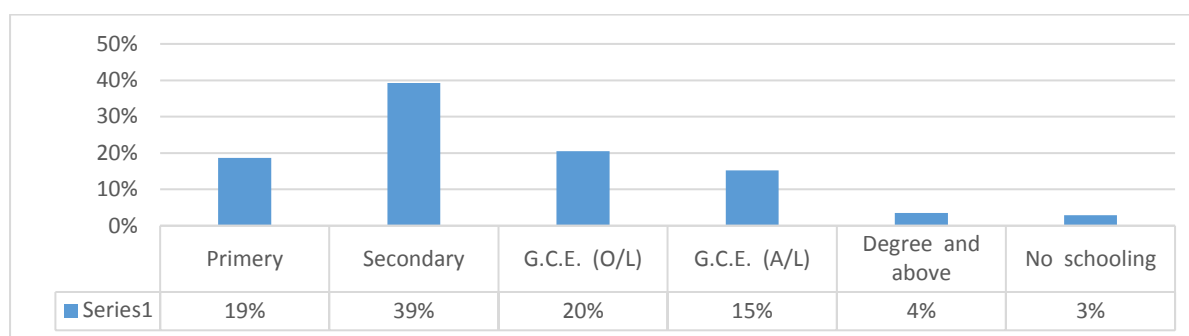
Table 14: Educational level of the population in the impacted area (above 4 years of age)

District	Total population above 4 years	Primary	Secondary	G.C.E. (O/L)	G.C.E. (A/L)	Degree and above	No schooling
Colombo	190,112	35,332	73,307	39,579	29,173	7,153	5,568
Gampaha	91,691	15,056	36,471	19,680	15,150	3,401	1,934
Kegalle	24,693	6,756	10,534	3,512	2,262	300	1,330
Overall	306,496	57,144	120,312	62,771	46,585	10,853	8,832

(Source: Department of Census & Statistics)

¹³ The figures do not include people below 4 years of age.

Figure 17: Educational qualifications of basin population



(Source: Department of Census & Statistics)

Among the educated population, approximately 39% have received secondary education, 20% are qualified in GCE O/L, 19% have primary education, and 15% have GCE A/L qualifications. The percentage of the population with a bachelor's degree or higher is 4%. In terms of the DSDs, the highest percentage of the population with GCE O/L, GCE A/L, and degree qualifications are found in the Kaduwela DSD (24% have GCE O/L, 22% have GCE A/L, and 7% have degrees). Meanwhile, the lowest levels of educational attainment are reported from the Deraniyagala and Yatiyantota DSDs in the Kegalle District. The DSD-wise data is provided in **Table 11 in Annex 1**.

2.3.4.6 Public assistance

There are various types of public assistance programmes that are being implemented in the project area by various government institutions. The Public Assistance for Tuberculosis (TB), Cancer, Thalassemia, and Leprosaria are provided by the government on the recommendations of the Medical Authorities. Additionally, other forms of public assistance, such as the Samurudhi programme for poverty reduction, elders' assistance, and other such assistance, are provided on recommendations of the political authorities and of local administrations.

Table 15: Public assistance recipients of the impacted area in the Kelani River Basin

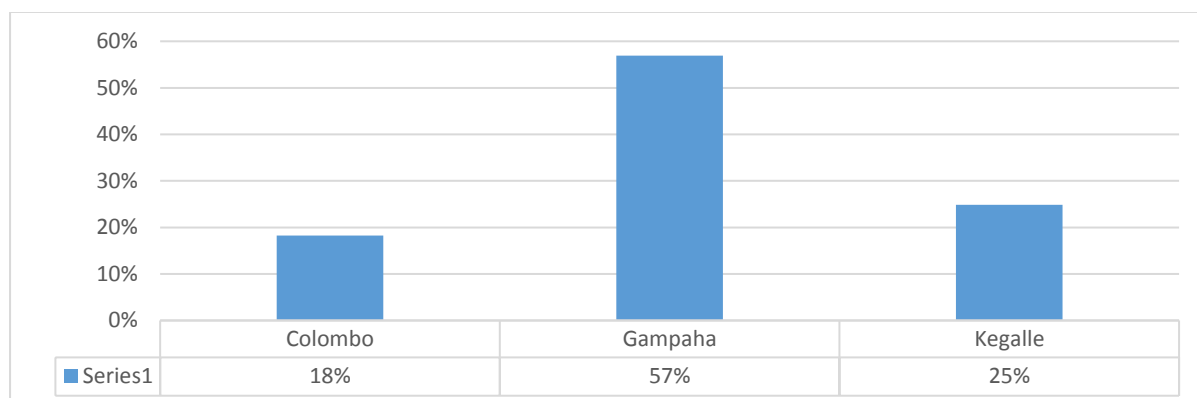
DSD	Recipient of TB	Recipient of assistance for cancer	Recipient of Thalassemia	Recipient of Leprosaria	Public assistance	Kidney assistance	Elders' assistance	Other assistance	Total
Colombo	3	33	1	2	570	-	-	-	609
Gampaha	2	75	1	1	828	-	857	139	1,902
Kegalle	1	34	1	1	403	-	365	27	832
Overall	6	142	2	4	1,801	-	1,222	165	3,343

(Source: District Statistical Hand Books - Department of Census & Statistics)

Information on the project affected area indicates that the majority of public assistance support is availed to individuals in the Dompe DS Division in the Gampaha District, while households in the Colombo, Kolonnawa, and Homagama DS Divisions in the Colombo District do not enjoy similar

benefits. **Figure 18** depicts the overall status of public assistance in the impacted area of the respective District. DSD-wise data is provided in **Table 12 in Annex 1**.

Figure 18: Status of public assistance recipients in the impacted area



(Source: District Statistical Hand Books - Department of Census & Statistics)

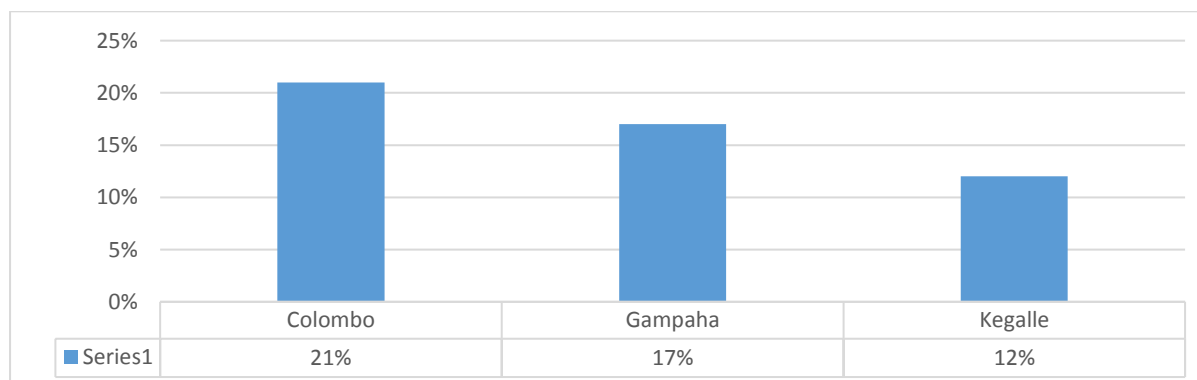
In terms of Samurudhi benefits, 63,154 households (18% of the total households in the impacted area) receive such benefits. As shown in **Table 16**, the percentage of the population receiving Samurudhi varies across the project affected Districts. In terms of the DSDs, the largest percentage of Samurudhi beneficiaries (27%) can be found in the Kolonnawa DS Division in the Colombo District. The DSD-wise data is provided in **Table 13 in Annex 1**.

Table 16: Number of Samurudhi beneficiaries in the impacted area

District	Total No. of families in the impacted area	No. of families receiving Samurudhi in the impacted area	% of families receiving Samurudhi benefits
Colombo	172,959	36,073	21%
Gampaha	122,472	20,969	17%
Kegalle	49,169	6,111	12%
Overall	344,599	63,154	18%

(Source: District Statistical Hand Books - Department of Census & Statistics)

Figure 19: Percentage of Samurudhi beneficiaries in the impacted area



(Source: District Statistical Hand Books - Department of Census & Statistics)

2.3.5 Housing Characteristics

2.3.5.1 Types of housing structures

The identified impacted area of the Kelani River Basin has a total of 75,118 housing units that are classified as permanent (67,023), semi-permanent (7,723), improvised (hut type) (316), and unclassified (57).

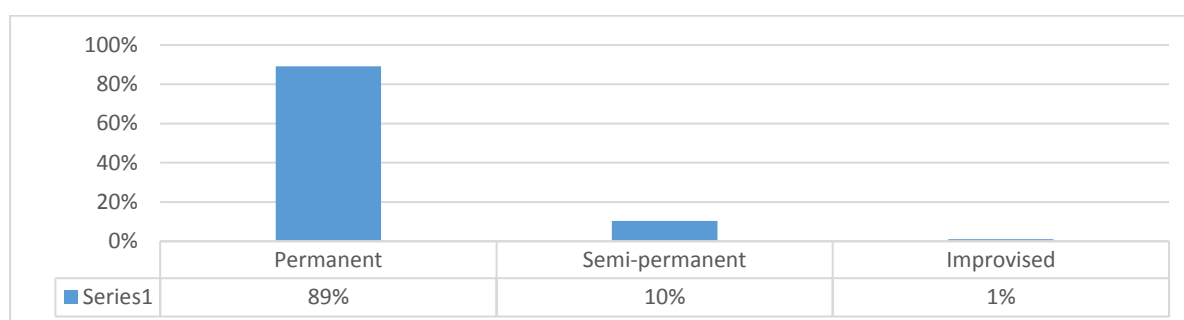
Table 17: Types of housing in the impacted area in Kelani River Basin

District	Total housing units in the impacted area	Permanent	Semi-permanent	Improvised	Unclassified
Colombo	45,794	42,053	3,526	169	47
Gampaha	22,485	20,238	2,151	86	9
Kegalle	6,839	4,732	2,046	61	-
Overall	75,118	67,023	7,723	316	57

(Source: Department of Census & Statistics)

The majority of the units in the project area are permanent (89%), while only 1% are classified as improvised structures or temporary structures. Of the permanent housing units, the highest are in the Kaduwela DS Division (11,984 or 15.9% of total housing units in the impacted area). The highest numbers of semi-permanent housing units (1,169 or 1.5% of total housing units in the impacted area) and improvised housing units (93 or 0.12% of total housing units in the impacted area) are in the Kolonnawa DS Division. The DSD-wise data is provided in **Table 14 of Annex 1**.

Figure 20: Status of different types of housing units



(Source: Department of Census & Statistics)

A variety of structures exist in the impacted area, including single one-story, single two-story, single multiple-story, annexes, flats, condominiums, twin houses, line rooms, and shanties. **Table 18** below presents the number of structures under each type of housing structures in each of the three Districts.

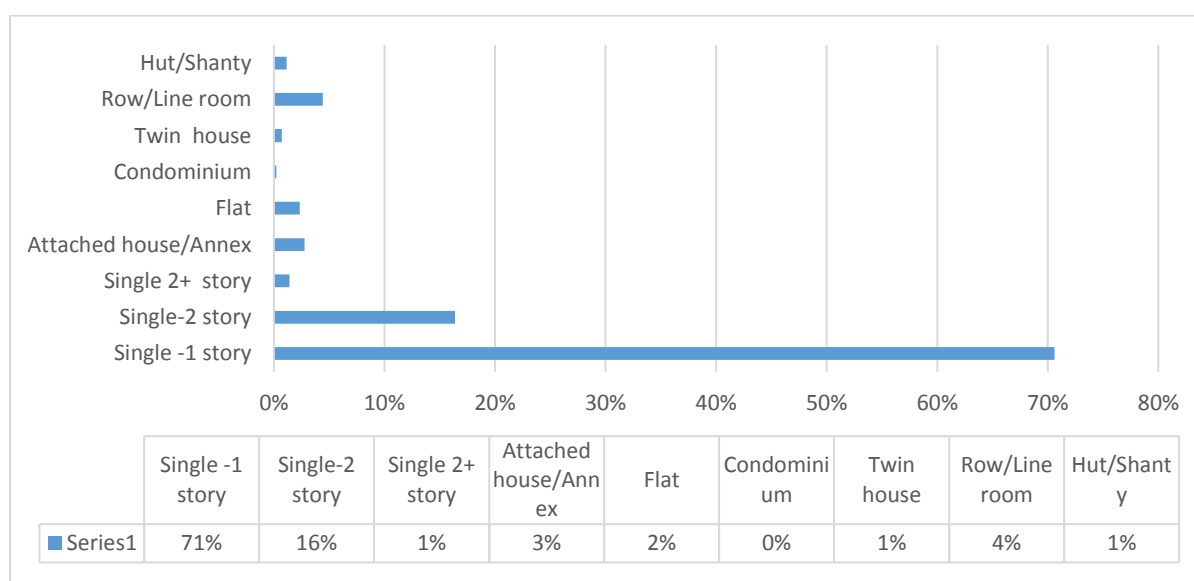
Table 18: Number of different housing structures in the impacted area

District	Total	Single 1-story	Single 2-story	Single 2 story +	Attached house/annex	Flat	Condominium	Twin house	Row/line room	Hut/shanty
Colombo	45,794	29,717	8,954	868	1,504	1,705	166	303	1,986	591
Gampaha	22,485	17,633	3,102	181	551	58	-	156	575	229
Kegalle	6,839	5,692	251	13	19	1	-	73	756	34
Overall	75,118	53,043	12,307	1,062	2,074	1,764	166	531	3,317	855

(Source: Department of Census & Statistics)

At present, 71% of the houses are single 1-story housing units, 16% are single 2-story housing units, 1% are single multi-storied housing units, 3% are annexes, 2% are flats, 1% are twin houses, 4% are row/line room housing units, 1% are shanties, and a very few are condominiums.

Table 19: Status of different types of housing structures in the impacted area



(Source: Department of Census & Statistics)

The DSD-wise information with respect to type of structure is presented in **Table 15 in Annex 1**.

2.3.5.2 Floor material

Cement, tile/granite/terrazzo, clay, wood, sand, and concrete are currently the main types of floor material used in the structures within the affected area. The majority of housing units have cement and tile/granite/terrazzo floors. **Table 20** below presents the details of floor types and number of structures.

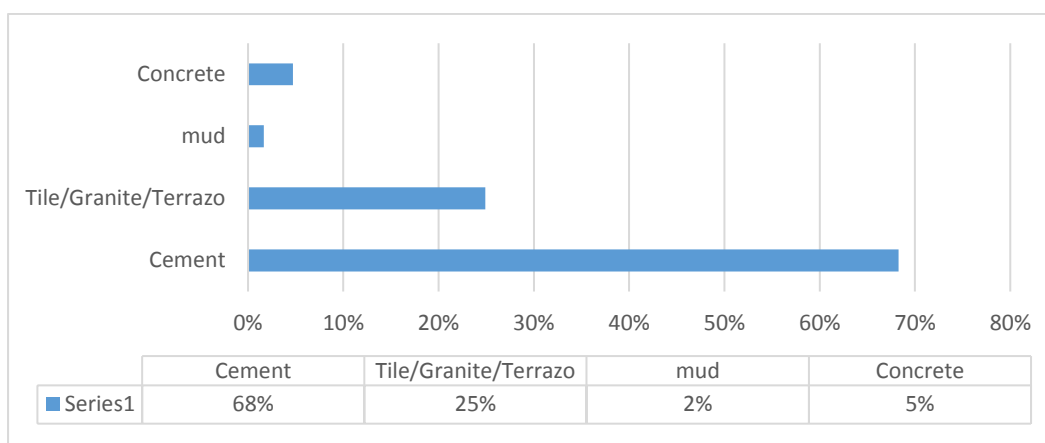
Table 20: Material used for flooring of housing units in the impacted area in Kelani River Basin

District	Total	Cement	Tile/granite/terrazzo	Mud	Wood	Sand	Concrete	Other
Colombo	45,794	30,123	13,076	386	74	43	1,986	105
Gampaha	22,485	15,653	5,202	281	20	25	1,248	56
Kegalle	6,839	5,500	424	581	7	8	298	21
Overall	75,118	51,276	18,702	1,248	101	77	3,532	183

(Source: Department of Census & Statistics)

Specifically, as depicted in **Figure 21**, 68% of houses have a cement floor (cement screed), 25% have a tile/granite/terrazzo floor, 2% have a clay floor (mud), and 5% have a concrete floor (structural floor without finishing).

Figure 21: Percentages of different floor types of housing units



(Source: Department of Census & Statistics)

DSD-wise information on existing floor types are provided in **Table 16 of Annex 1**.

2.3.5.3 Roofing material

Tiles, asbestos, concrete, zinc aluminium sheets, metal sheets, and cadjan/palmyra/straws are the main types of materials used for roofing in the project impacted areas. **Table 22** and **Figure 22** below summarizes the types of roofing material used in project affected areas in each District.

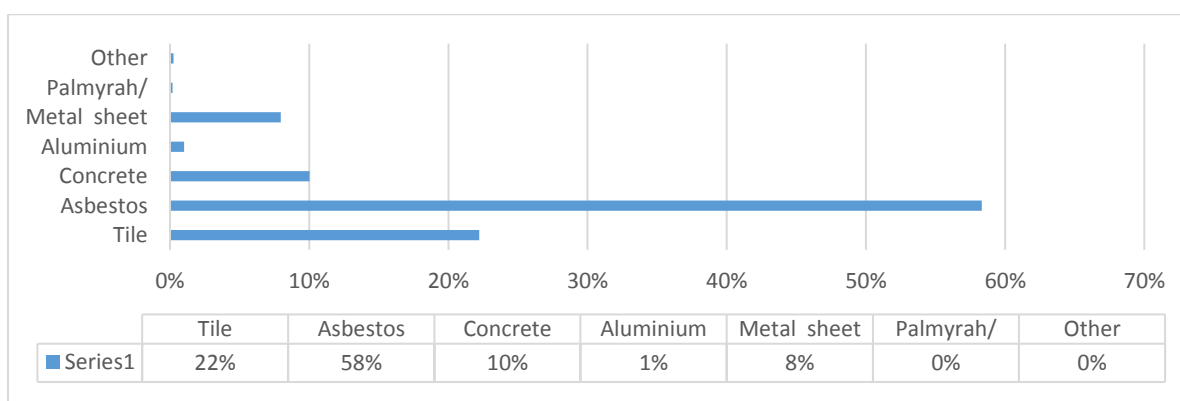
Figure 22: Material used for roofing of housing units in the impacted area

District	Total	Tile	Asbestos	Concrete	Aluminium	Metal sheet	Palmyra	Other
Colombo	45,794	7,538	28,838	6,048	486	2,696	54	135
Gampaha	22,485	6,976	12,358	1,380	227	1,464	46	34
Kegalle	6,839	2,182	2,622	111	43	1,815	36	30
Overall	75,118	16,696	43,818	7,539	756	5,975	136	199

(Source: Department of Census & Statistics)

A majority of housing units have asbestos roofing (58%), 22% use tiles, 8% use metal sheet roofing, 10% use concrete roofing, 1% use zinc aluminium roofing, and a small proportion, though almost negligible, also have cadjan/palmyra/straw roofs.

Figure 23: Status of different types of material used for roofing of the housing units



(Source: Department of Census & Statistics)

The DSD-wise data is provided in **Table 17 of Annex 1**.

2.3.5.4 Material used for walls

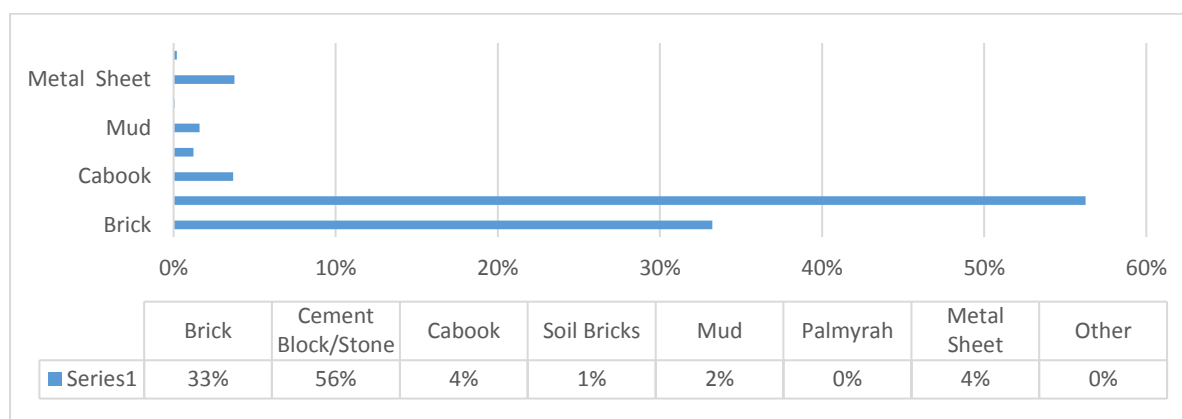
Brick, cement blocks/stones, cabook, soil bricks, cadjan/palmyra, and plank/metal sheets are the main types of wall materials used in the project area, as shown in the following **Table 16** and **Figure 24**. The majority of housing units have cement blocks and stones (56%), and 33% have bricks. A minimal percentage of housing units have cabook, soil bricks, clay (mud), plank and metal sheets as walls, while even a smaller percentage of houses, particularly in the rural parts of the basin, have cadjans/palmyra walls.

Table 21: Material used for walls of housing units in the impacted area

District	Total	Brick	Cement block/stone	Cabook	Bricks	Mud	Palmyra	Metal sheet	Other
Colombo	45,794	16,695	25,149	1,536	308	290	37	1,690	89
Gampaha	22,485	7,860	11,711	1,138	345	488	11	890	40
Kegalle	6,839	406	5,402	82	270	420	4	244	12
Overall	75,118	24,961	42,262	2,756	923	1,198	51	2,824	142

(Source: Department of Census & Statistics)

Figure 24: Status of different types of material used for walls



(Source: Department of Census & Statistics)

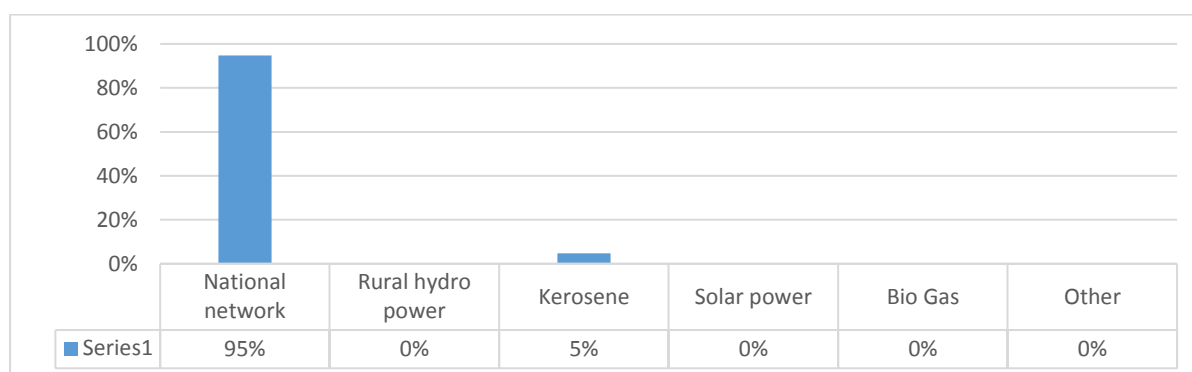
The DSD-wise data is provided in **Table 18 of Annex 1**.

2.3.6 Access to Public Utilities

2.3.6.1 Energy resources and services

In the past, people used the forests in the basin area to secure firewood for domestic consumption. However, with the development of infrastructure and changes in life styles, there has been a gradual shift from using these forest resources to modern sources, such as gas and electricity. Specifically, there are different types of lighting methods used in households, including electricity supply from the national grid, electricity from rural hydroelectricity projects, kerosene, solar power, bio gas, and other sources of electricity supply. The types of energy source for lighting is presented in **Table 22** below. As shown in **Figure 25** below, 95% of the households in the project area use the national grid and 5% use kerosene for lighting their houses. Other types of lightings constitute less than 1%.

Figure 25: Source of electricity supply to the household



(Source: Department of Census & Statistics)

With regards to trends across the different areas, over 95% of the households in all the DS Divisions in the Colombo and Gampaha Districts use lighting from the national grid. In the DS Divisions of the Kegalle District, the average use of electricity from national grid is lower at 76%. The lowest use of the national grid is reported from the Deraniyagala DS Division (67% of households) in the Kegalle District. Correspondingly, in the Deraniyagala DS Division, kerosene usage is relatively high compared to other DSDs (26%). The DSD-wise data is provided in **Table 19 of Annex 1**.

Table 22: Types of lighting in the impacted area

District	Total	National grid	Rural hydro power	Kerosene	Solar power	Bio gas	Other
Colombo	46,617	45,087	-	1,464	8	1	56
Gampaha	22,804	21,994	-	787	3	1	19
Kegalle	6,880	5,207	224	1,348	96	-	4
Overall	76,300	72,288	224	3,599	107	2	80

(Source: Department of Census & Statistics)

In terms of cooking fuel, **Table 23** and **Figure 26** presents the types of cooking fuel used by households in the project impacted area. The common energy sources for cooking are firewood, gas, and kerosene. A small percentage of households also use electricity, saw dust/paddy husk, and other materials.

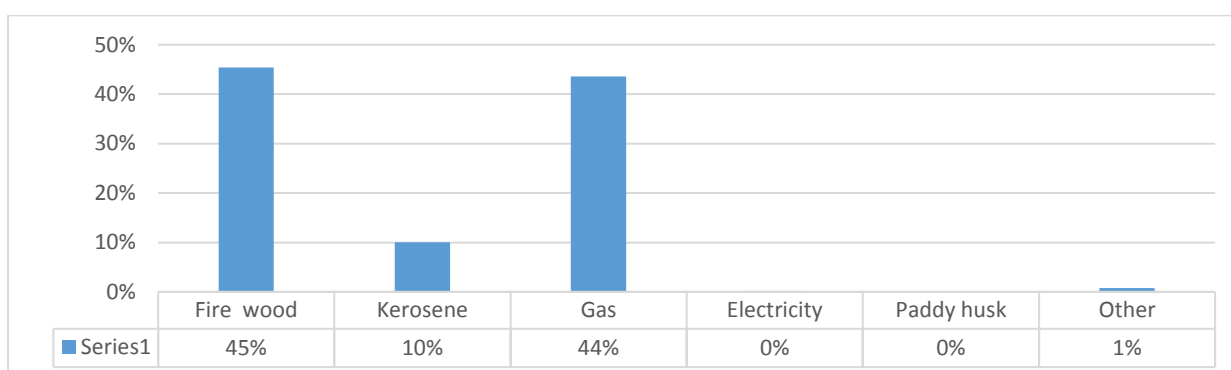
Table 23: Types of cooking fuel used in the impacted area

District	Total	Firewood	Kerosene	Gas	Electricity	Paddy husk	Other
Colombo	46,617	15,875	6,018	24,301	109	21	292
Gampaha	22,804	12,181	1,618	8,670	44	12	278
Kegalle	6,880	6,577	17	268	6	2	9
Overall	76,300	34,634	7,653	33,238	159	36	580

(Source: Department of Census & Statistics)

Overall, however, the majority of households use fuel wood (45%) and gas (44%) for cooking purposes, and 10% use kerosene.

Figure 26: Usage of cooking fuel in the households



(Source: Department of Census & Statistics)

The DSD-wise data is provided in **Table 20 of Annex 1**.

2.3.6.2 Drinking water supply

The main sources of drinking water supply are the national water supply network, protected wells within premises, protected wells outside premises, unprotected wells, taps within unit (main line), taps within premises but outside unit (main line), taps outside premises (main line), rural water projects, tube wells, bowsers, rivers/tanks/streams, and rain water. The following **Table 24** and **Figure 27** show the relevant data.

Table 24: Sources of drinking water in the impacted area

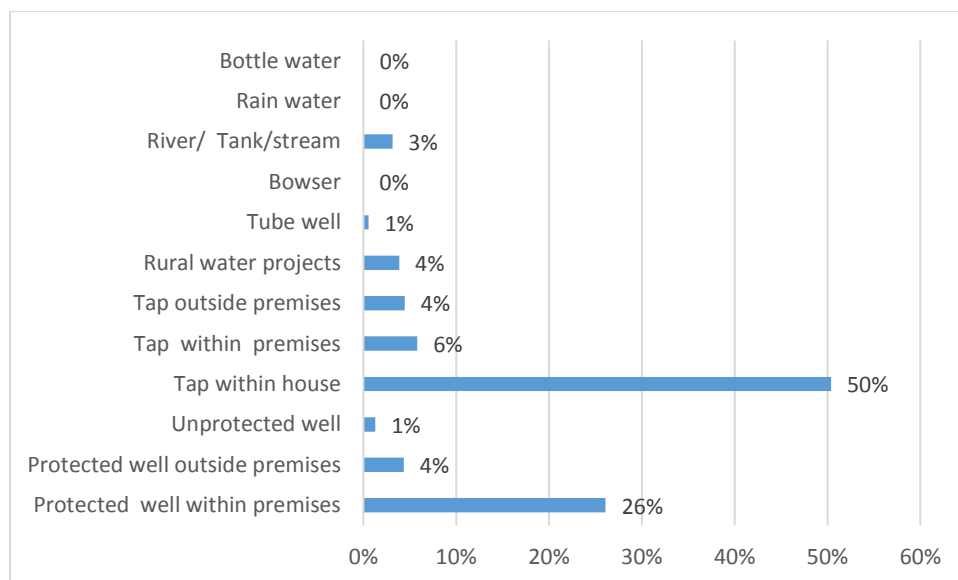
District	Colombo	Gampaha	Kegalle	Overall
Protected well within premises	10,024	8,827	974	19,826
Protected well outside premises	1,158	1,279	872	3,310
Unprotected well	200	313	458	971
Tap within house	28,022	9,645	614	38,280

District	Colombo	Gampaha	Kegalle	Overall
Tap within premises	2,446	1,578	389	4,414
Tap outside premises	2,579	519	286	3,384
Rural water projects	1,474	288	1,165	2,927
Tube well	197	217	19	433
Bowser	1	2	6	10
River/tank/stream	330	19	2,029	2,378
Rain water	3	3	4	10
Bottle water	26	14	-	39
Total	46,461	22,705	6,818	75,983

(Source: Department of Census & Statistics)

In the Kelani Rive Basin, the majority (around 90%) of the population obtain drinking water from the National Water Supply and Drainage Board (NWSDB) water lines and protected wells. The DS Divisions in urban areas, such as Colombo, Kolonnawa and Kaduwela in the Colombo District, and all the DS Divisions in the Gampaha District rely heavily on water supply from the NWSDB. The rest of the DS Divisions, particularly in the rural areas, obtain water from wells, rural water supply schemes, rivers, streams, and creeks. The DSD-wise data is provided in **Table 21 of Annex 1**.

Figure 27: Sources of drinking water supply



(Source: Department of Census & Statistics)

2.3.6.3 Schools and educational facilities

Table 25 presents the composition of different grades of schools in the three Districts. Comparatively, there are less schools in the Gampaha District than the Colombo and Kegalle Districts.

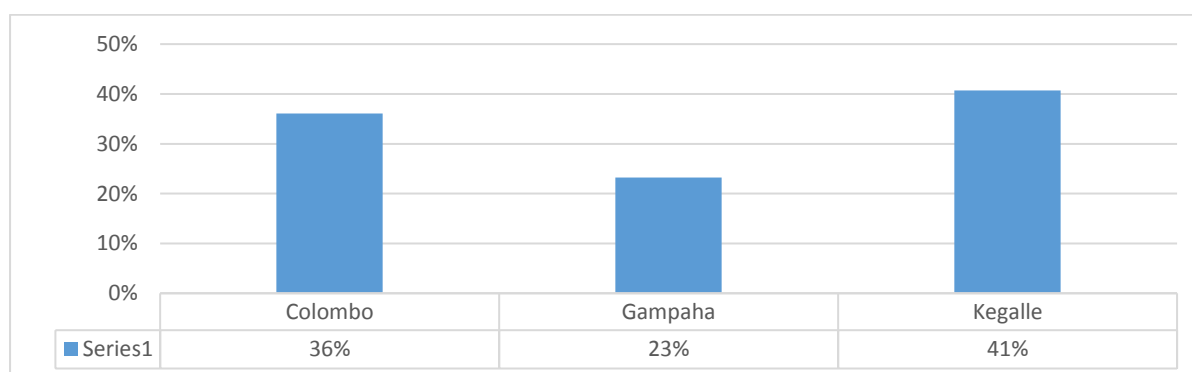
Table 25: Number of schools in the Districts with in the impacted area

District	National school ¹⁴	1AB Schools ¹⁵	1C Schools ¹⁶	Grade 2 Schools ¹⁷	Grade 3 Schools ¹⁸	Total
Colombo	11	7	43	101	34	196
Gampaha	6	15	30	36	39	126
Kegalle	4	12	32	89	84	221
Overall	21	34	105	226	157	543

(Source: District Statistical Hand Books - Department of Census & Statistics)

However, as shown in **Table 26** below, in terms of the total number of schools in the respective impacted area of the DSDs, 41% of schools are in the Kegalle District, 36% are in the Colombo District, and 23% are in the Gampaha District. The largest percentage of national schools is recorded in the Colombo District. The DSD-wise data is provided in **Table 22 of Annex 1**.

Table 26: Distribution of schools in the Districts



(Source: District Statistical Hand Book - Department of Census & Statistics)

Table 27 presents the student/teacher ratio in the schools in the basin area. The overall student/teacher ratio is 20.9:1, with the highest ratio recorded in the Gampaha District and the lowest of 15.5:1 in the Kegalle District. The national level student/teacher ratio is 23.1:1, indicating that the situation is much better in the project area compared to the national average.

¹⁴ The schools administered by the Central Government

¹⁵ Schools with GCE Advance Level (Gr.12-13) Science Stream

¹⁶ Schools with GCE Advance Level (Gr.12-13) Arts/Commerce Streams

¹⁷ Schools with Classes up to GCE Ordinary Level

¹⁸ Schools with Classes up to Gr. 8 or 5

Table 27: Student/teacher ratio in Districts in basin area

District	No. of students	No. of teachers	Ratio
Colombo	139,744	6,636	21.1
Gampaha	101,783	4,216	24.1
Kegalle	42,744	2,758	15.5
Overall	284,271	13,610	20.9

(Source: District Statistical Hand Book - Department of Census & Statistics)

The DSD-wise data is provided in **Table 23 of Annex 1**.

2.3.6.4 Hospitals and health services

Table 28 presents information on the number of hospitals, number of beds in the hospitals, number of Medical Officers of Health (MOHs), number of Public Health Inspectors (PHIs), and number of midwives available in the basin. Of the three Districts in the project area, the largest number of hospitals are located in the Colombo District (42%), 32% are in the Kegalle District, and 26% in the Gampaha District. Further, the largest numbers of hospital beds, MOHs, PHIs, and midwives are also in the Colombo District.

Table 28: Availability of the health and medical facilities in the impacted area

District	Hospitals	Beds	MOHs	PHIs	Midwives
Colombo	8	1,336	4	37	175
Gampaha	5	323	4	31	117
Kegalle	6	615	4	15	67
Overall	19	2,274	12	83	359

(Source: District Statistical Hand Books - Department of Census & Statistics)

Information with respect to DSD-wise data on hospitals is provided in **Table 24 of Annex 1**.

2.3.6.5 Roads and transport facilities

Table 29 presents the road lengths covered in the impacted area of each District. The largest road network within the proposed project intervention area is recorded in the Colombo District, and the lowest is in the Gampaha District. Specifically, of the total road length in the impacted area, the Colombo District contains 41% of roads, 35% is in the Kegalle District, and 24% is in the Gampaha District.

Table 29: Distribution of road network lengths and types of roads

Type of Roads	Roads length in the district (km)		
	Colombo	Gampaha	Kegalle
A Grade	110	60	55
B Grade	263	283	141
C Grade	201	139	324
D Grade	158	1	362
Local Government	453	212	109
Total length of road	1,185	695	991

(Source: District Statistical Hand Book - Department of Census & Statistics)

DSD-wise data on the length of roads is presented in **Table 25 of Annex 1**.

2.3.6.6 Sanitary facilities

Households in the Kelani basin area have access to different types of sanitary facilities, including water sealed toilets connected to a piped sewer system, water sealed toilets connected to a septic tank, pour flush toilets (not water sealed), direct pits, and other types as shown in **Table 30** and **Figure 28**. However, in some areas of the basin, there are households that do not have any access to proper sanitary facilities.

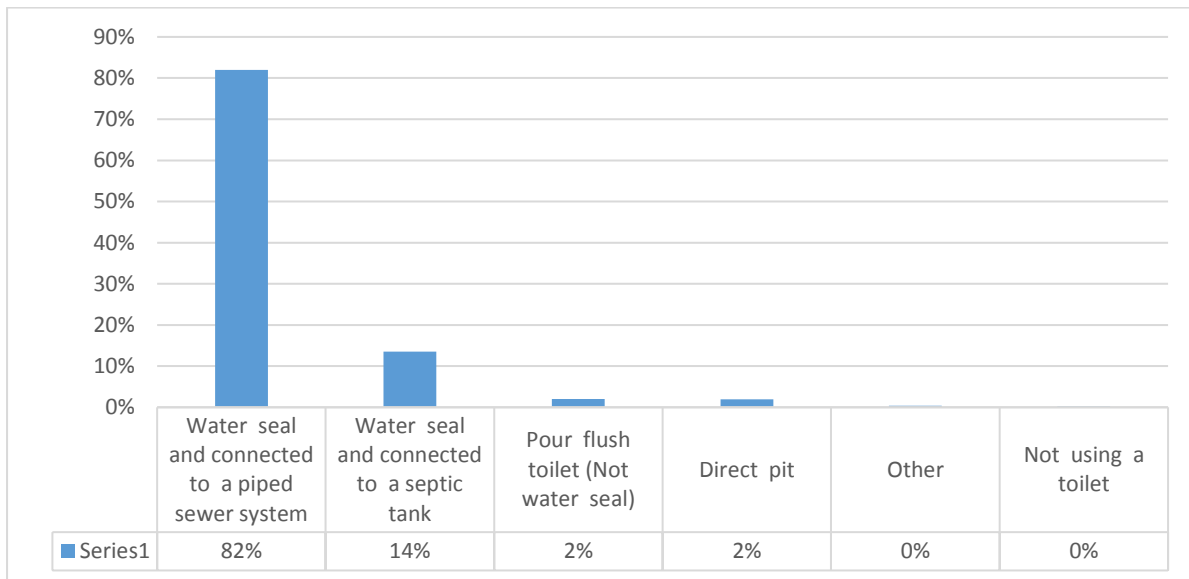
Table 30: Availability of toilets in the impacted area

District	Total	Water sealed and connected to a piped sewer system	Water sealed and connected to a septic tank	Pour flush toilet	Direct pit	Other	Not using a toilet
Colombo	46,617	35,911	8,813	715	903	236	40
Gampaha	22,804	20,612	1,293	506	327	37	28
Kegalle	6,880	6,043	215	308	222	2	90
Overall	76,300	62,566	10,321	1,529	1,452	274	157

(Source: Department of Census & Statistics)

Specifically, across the DS Divisions in the basin area impacted by the project, 82% of households have access to water seal toilet connected to sewer system, 14% have water seal toilets with a septic tank, 2% have flush type toilets and 2% utilize direct pit.

Figure 28: Availability of toilets to the household



(Source: Department of Census & Statistics)

The DSD-wise data is provided in **Table 26 of Annex 1**.

2.3.6.7 Methods of solid waste disposal

Appropriate disposal of solid waste is an issue that is critical across the country, including in the Kelani basin area. Some of the methods of solid waste disposal used in the basin are: collection by local authorities, burning, burying, composting, and dumping in roads/rivers/canals/sea/creeks/forests. Specifically, the majority of the households in the basin area manage the waste generated from their households by themselves, including by burning, burying, and composting (55%), while in 33% of the households, the solid waste of the households is collected by the local authorities. However, across the DSDs and Districts, there is a significant variation in terms of the methods used for disposal of the waste:

- Waste generated by 98% of households in the Colombo DS Division in the Colombo District is collected by the local authority;
- 62% households in the Dompe DS Division in the Gampaha District burn domestic solid waste;
- 50% households in the Bulathkohupitiya DS Division in the Kegalle District bury solid waste by themselves;
- 8% households in the Homagama DS Division in the Colombo District and the Ruwanwella DS Division in the Kegalle District make compost from solid waste;
- 2% households in the Bulathkohupitiya DS Division dispose of solid waste haphazardly into roads, canals, rivers, creeks, or forests.

Table 31: Principal methods of solid waste disposal in the impacted area

District	Total	Collected by local authority	Burned by occupants	Buried by occupants	Composted by occupants	Road/river/canal/sea/forest	Other
Colombo	46,617	30,047	10,513	4,138	1,459	315	145
Gampaha	22,804	10,221	8,724	3,110	610	112	27
Kegalle	6,880	340	2,828	3,107	489	101	15
Overall	76,300	40,607	22,064	10,355	2,558	528	187

(Source: Department of Census & Statistics)

The DSD-wise data is provided in **Table 27 of Annex 1**.

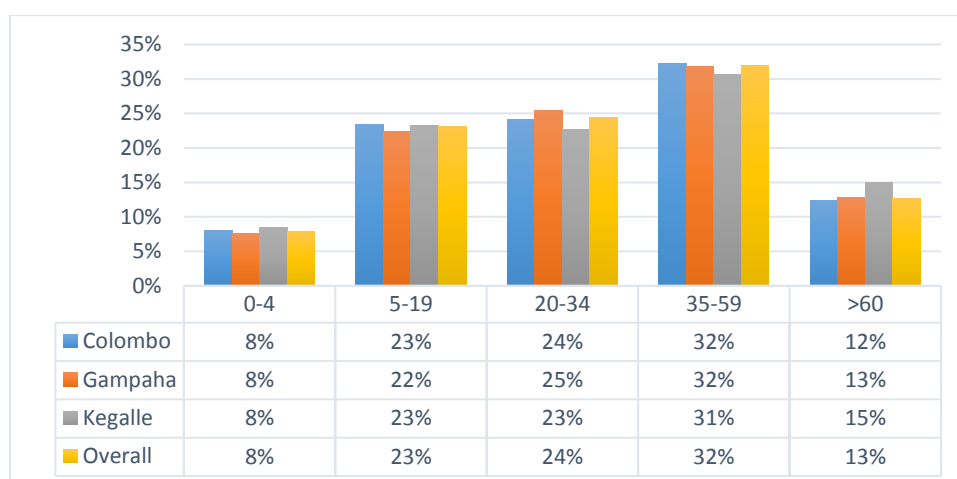
2.4 Gender and Vulnerability in the Project Area

2.4.1 Gender Distribution in the Project Area

2.4.1.1 Female population by age

The population of the impacted area consists of 163,540 (49.2%) males and 169,165 (50.8%) females. The female population by age group across the various Districts is presented in **Figure 29**. **Table 28 of Annex 1** provides the female population by age group in the DSDs.

Figure 29: Female population by age groups in the impacted area



(Source: District Statistical Hand Books - Department of Census & Statistics)

2.4.1.2 Female population by ethnicity

The female population distribution of the impacted area of the Kelani River Basin is similar to the distribution of the total population in the impacted area of the Kelani River Basin. **Table 32** and **Figure 30** below presents the gender distribution status of the female population by ethnicity.

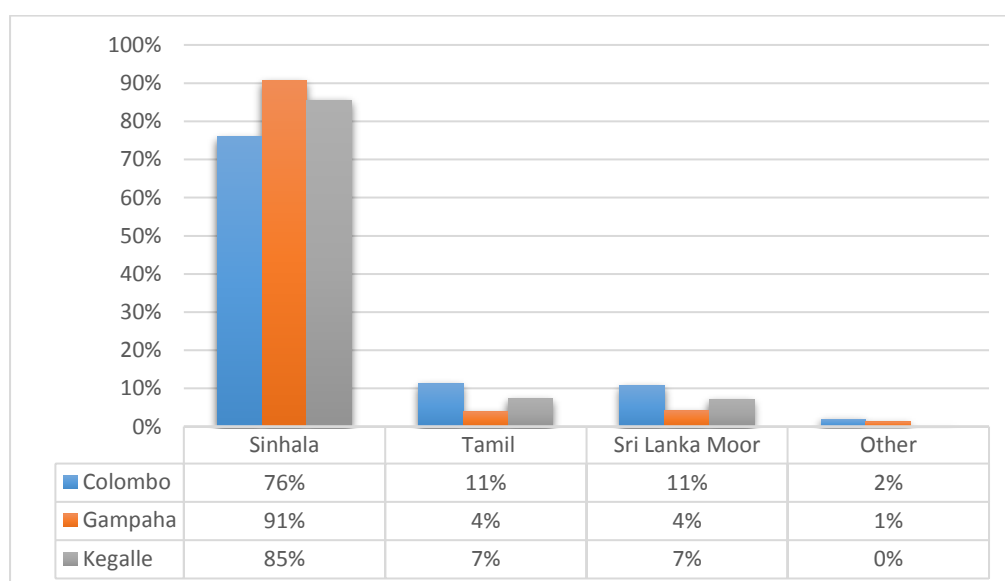
Table 32: Female population by ethnicity in the impacted area

District	Sinhalese	Tamil	Sri Lankan Moor	Other	Total
Colombo	80,045	11,719	11,196	1,674	104,634
Gampaha	45,803	1,972	2,123	657	50,555
Kegalle	11,949	1,020	992	14	13,975
Overall	137,797	14,711	14,311	2,345	169,165

(Source: District Statistical Hand Books - Department of Census & Statistics)

Figure 30 shows that the majority female population in all Districts is Sinhalese. However, the Tamil and the Sri Lanka moor female population in the Colombo District is comparatively high. Among them, the highest female population is from the Colombo, Kolonnawa, Kaduwela, and Seethawaka DS Divisions. The **Table 29 in Annex 1** shows the details of the female population at DSDs.

Figure 30: Female population by ethnicity in the impacted area



(Source: District Statistical Hand Books - Department of Census & Statistics)

2.4.1.3 Female population by religion

The trends of the female population in terms of ethnicity and religion are similar. The majority of the female population are Buddhist and a substantial number are Hindu, Muslim, and Catholic in the Colombo District. **Table 30 in Annex 1** shows the details of female population at DSDs.

Table 33: Female population by religion in the impacted area

District	Buddhist	Hindu	Muslim	Roman Catholic	Other
Colombo	73,453	8,371	12,347	7,324	3,139
Gampaha	36,046	1,163	2,477	9,858	1,011
Kegalle	11,796	908	1,020	0	252
Overall	121,295	10,442	15,844	17,182	4,402

(Source: District Statistical Hand Books - Department of Census & Statistics)

2.4.1.4 Female population by education levels

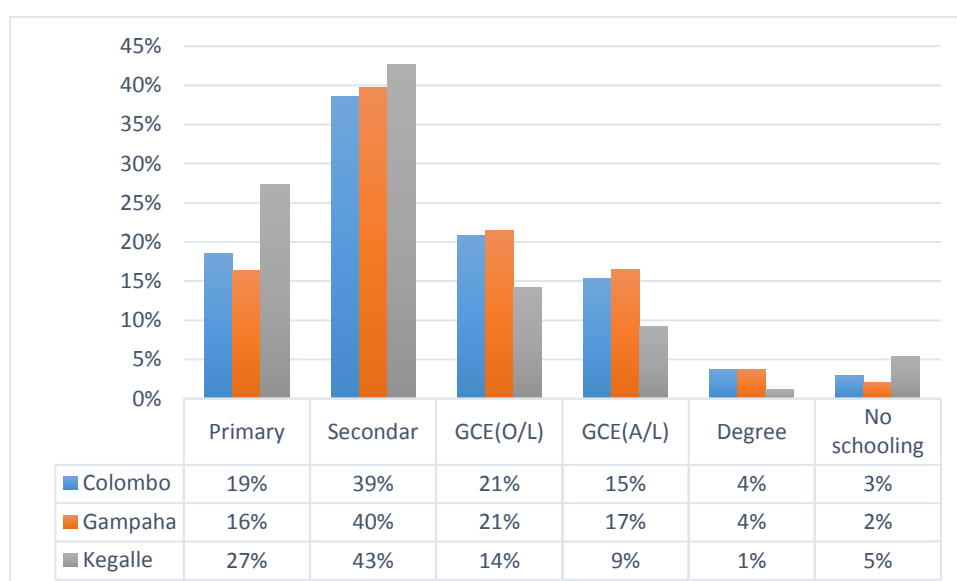
Table 34 presents the education levels of the female population in the impacted area in the Kelani River Basin. **Figure 31** shows the education levels of the female population at District levels. **Table 31 in Annex 1** shows the education levels of the female population at the DSD level.

Table 34: Female population by education in the impacted area

District	Primary	Secondary	GCE (O/L)	GCE (A/L)	Degree	No schooling
Colombo	17,865	37,110	20,077	14,815	3,636	2,811
Gampaha	7,675	18,593	10,031	7,719	1,732	986
Kegalle	3,499	5,457	1,820	1,173	155	688
Overall	29,039	61,160	31,928	23,707	5,523	4,485

(Source: District Statistical Hand Books - Department of Census & Statistics)

Figure 31: Female population by education levels in the impacted area



(Source: District Statistical Hand Books - Department of Census & Statistics)

2.4.1.5 Female-headed households

The women headed households in the three Districts is about one fifth of its population: 21% in the Colombo District, 20% in the Gampaha District, and 21% in the Kegalle District. This is in comparison to the 20% of households at the national level being women-headed households. Since female headed households take full responsibility of managing the family, reducing the poverty levels, as well as providing other types of social protection to these families, this is an important factor to consider.

2.4.1.6 Female population by employment

Table 35 and **Figure 32** below present the employment levels of the female population in the impacted area of the Kelani River Basin. **Table 32 of Annex 1** provides the employment levels of the female population in the DSDs.

Table 35: Female population by employment levels in the impacted area

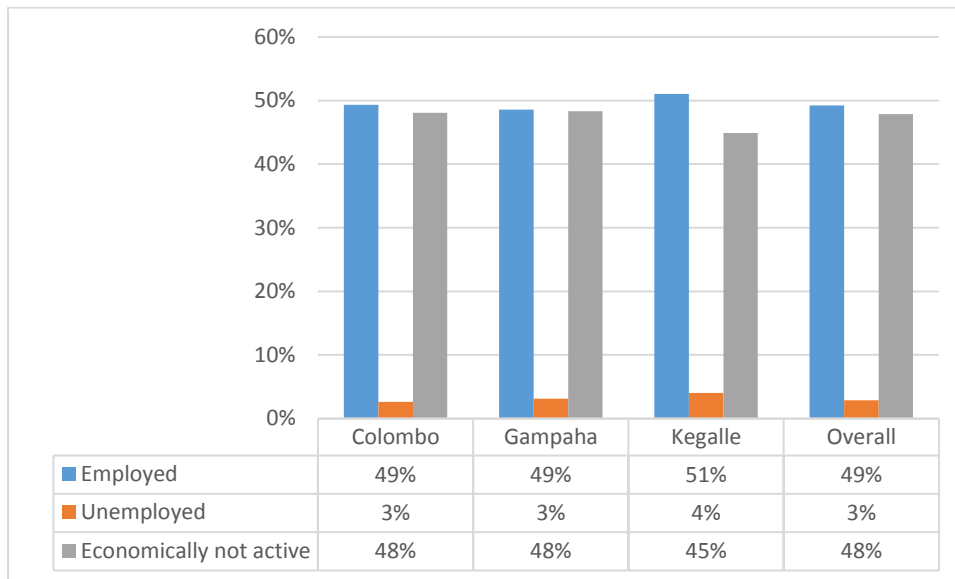
District	Employed	Unemployed	Economically not active	
Colombo	39,450	2,087	38,427	79,964
Gampaha	19,050	1,220	18,960	39,230
Kegalle	5,391	428	4,741	10,560
Overall	63,891	3,735	62,128	129,754

(Source: District Statistical Hand Books - Department of Census & Statistics)

As can be seen, the participation of women in the labour markets is approximately 50%. The rates are similar across the project area, although it is slightly higher in the Kegalle District. However, these figures across the three Districts are higher than the female labour force participation rate at the national level, which is only 36%.¹⁹

¹⁹ World Bank. Getting to Work: Unlocking Women's Potential in the Sri Lanka's Labor Force' 2017.

Figure 32: Female population by employment levels in the impacted area



(Source: District Statistical Hand Books - Department of Census & Statistics)

2.4.2 Vulnerable Groups in the Project Area

Vulnerable groups are defined as persons below the poverty level, the unemployed population, the population who did not attend schools, the differently abled population, children below four years old, and elderly persons above 60 years old. This section provides the population data on vulnerable groups in terms of the following categories: poor (below poverty line), unemployed, no schooling, disabled, and children/elders.

2.4.2.1 Population below the poverty line

Table 36 presents the number of persons in each of the Districts below the poverty line and the percentage of such population. The poverty line is considered to be SLRs. 3,624 per month. Overall, the poverty rate is reported as 3.8% in the impacted area of the Kelani River Basin.

Table 36: Poverty levels in the impacted area

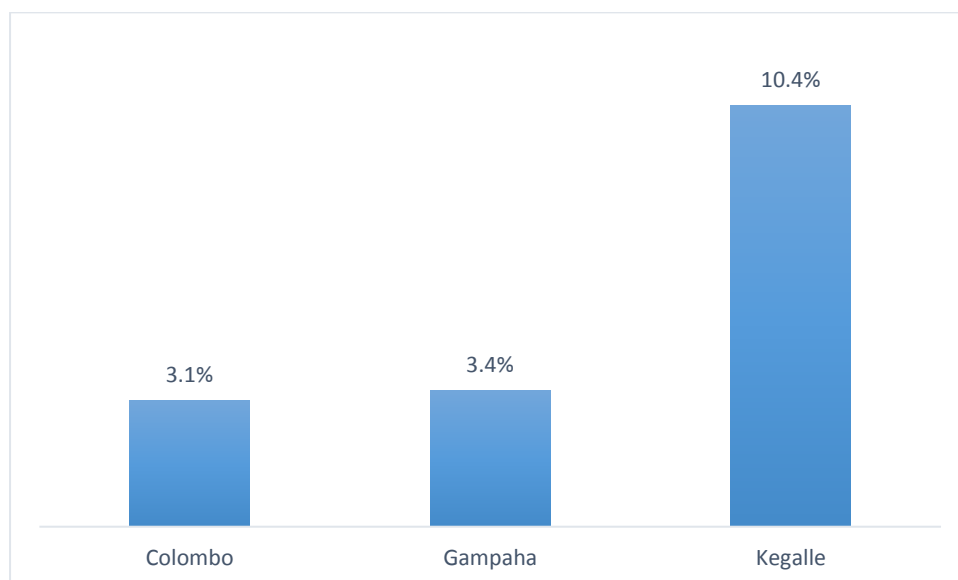
District	Impacted area		
	Total population in 2018	Total poor population in 2018	%
Colombo	206,543	6,436	3.1%
Gampaha	99,184	3,344	3.4%
Kegalle	26,979	2,814	10.4%
Overall	332,705	12,594	3.8%

(Source: Spatial Distribution of Poverty I Sri Lanka - Department of Census & Statistics)

Figure 33 below shows the status of poverty in each of the Districts. The highest poverty level is reported in the Kegalle District. It is a significant feature that a high poverty rate is reported from the

rural areas: Deraniyagala DSD (11.6%), Yatiyantota DSD (10.9%), Bulathkohupitiya DSD (9.6%), Ruwanwella DSD (8%), Dompe DSD (5.3%), and Seethawaka DSD (5%). In all other DSDs that are urban, their poverty rate is less than 4%. **Table 33 of Annex 1** provides the status of poverty levels of the respective DSDs.

Figure 33: Poverty levels in the districts of the in the impacted area



(Source: Spatial Distribution of Poverty | Sri Lanka - Department of Census & Statistics)

2.4.2.2 Unemployed population

Table 37 below presents the numbers of the unemployed population in each of the District. The highest unemployment is reported from the Kegalle District (3.1%) and 3.5% from the Deraniyagala DSD. **Table 34 of Annex 1** presents the unemployed population at the DSDs.

Table 37: Unemployed population in the impacted area of the Kelani River Basin

District	Impacted area		
	Total population in 2018	Unemployed population in 2018	% of unemployed
Colombo	206,543	4,119	2.0%
Gampaha	99,184	2,394	2.4%
Kegalle	26,979	826	3.1%
Overall	332,705	7,339	2.2%

(Source: District Statistical Hand Books - Department of Census & Statistics)

2.4.2.3 Population who did not attend school

Table 38 below shows the population who did not attend school in the impacted area of the Kelani River Basin. The highest percentage of 5.4% is from the Kegalle District. Meanwhile, high percentages of non-schooling are reported from the Deraniyagala DSD (6.3%), Bulathkohupitiya DSD (5.4%),

Yatiantota DSD (5.3%), and Colombo DSD (4.5%). **Table 35 of Annex 1** shows the “No schooling population” in the DSDs.

Table 38: Population who did not attend school in the impacted area

District	Total population above 4 years	No schooling	%
Colombo	190,112	5,568	2.9%
Gampaha	91,691	1,934	2.1%
Kegalle	24,693	1,330	5.4%
Overall	306,496	8,832	2.9%

(Source: District Statistical Hand Books - Department of Census & Statistics)

2.4.2.4 People with disabilities

Table 39 below presents the national level data on disabled persons in 2018. It also contains information on disabled persons in the impacted area. At the national level, the percentage of people with a disability is reported at 1.55%. In the three project Districts, the percentage is higher at 2.19%. Further, the highest rate of disability is recorded in the Kegalle District (4.17%).

Table 39: Disabled population in the impacted area

District	Total population in the impacted area	Total disabled population in the impacted area	Disabled population in 2018					
			Disability in seeing	Disability in hearing/speaking	Disability in hands	Disability in legs	Other disabilities	Mental disability
Colombo	206,543	4,425	735	786	562	1,123	149	1,070
%		2.14%	0.36%	0.38%	0.27%	0.54%	0.07%	0.52%
Gampaha	99,184	1,745	316	354	234	449	62	329
%		1.76%	0.32%	0.36%	0.24%	0.45%	0.06%	0.33%
Kegalle	26,979	1,125	201	225	155	278	50	217
%		4.17%	0.74%	0.83%	0.57%	1.03%	0.18%	0.80%
Overall	332,705	7,295	1,251	1,365	951	1,851	261	1,615
%		2.19%	0.38%	0.41%	0.29%	0.56%	0.08%	0.49%
National level	21,637,645	335,631	82,107	87,153	57,194	11,379	15,775	82,023
%		1.55%	0.38%	0.40%	0.26%	0.05%	0.07%	0.38%

(Source: District Statistical Hand Books - Department of Census & Statistics)

2.4.2.5 Dependent population

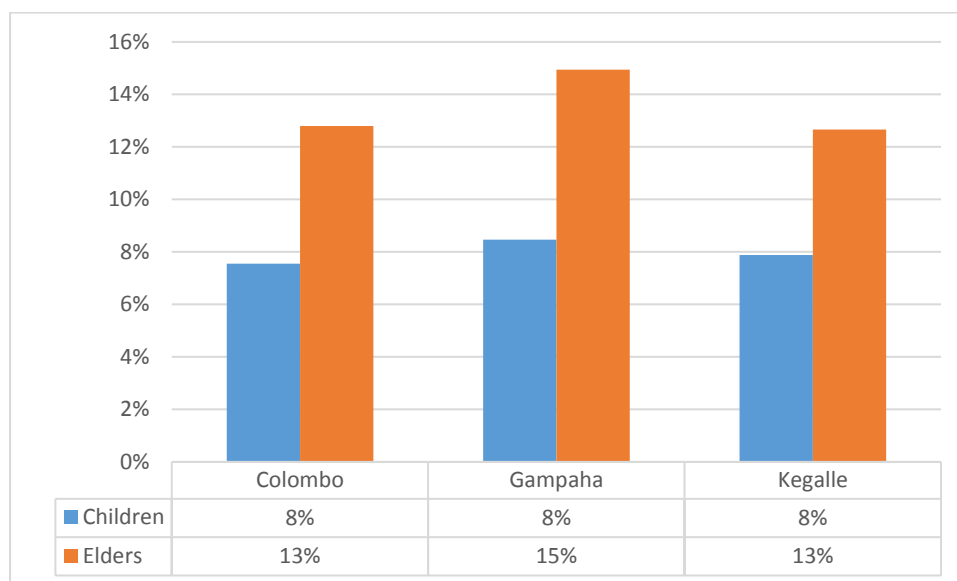
The dependent population, comprising the population of children below four years old and elders above 60 years old, constitutes approximately 21% of the population in the project area. The distribution of the population across the three Districts is similar, although the Gampaha District has a slightly higher percentage of the elderly population. **Table 40** and **Figure 34** below shows the number and percentages of these two categories at the District level. **Table 36 of the Annex 1** presents the children and elderly population in the DSDs.

Table 40: Population of children and the elderly in the impacted area

District	Total population in impacted area	Children	Elders
Colombo	206,543	16,431	25,398
Gampaha	99,184	7,493	12,687
Kegalle	26,979	2,286	4,032
Overall	332,705	26,209	42,116

(Source: District Statistical Hand Books - Department of Census & Statistics)

Figure 34: Population of the children and the elderly in the impacted area



(Source: District Statistical Hand Books - Department of Census & Statistics)

2.5 Commercial and Industrial Activities in the Project Area

2.5.1 Registered industries

Industries within the basin area include: mining and quarrying; food, beverages, and tobacco; textiles, wearing, apparel, and leather; wood, wood production, and furniture; paper products and printing; chemical, petroleum, rubber, and plastic; non-metallic mineral products; basic metal products,

machinery, and equipment; water works and supplies, and other manufacturing industries. Altogether, there are 9,777 industries within the categories mentioned in the impacted area of the DSDs.

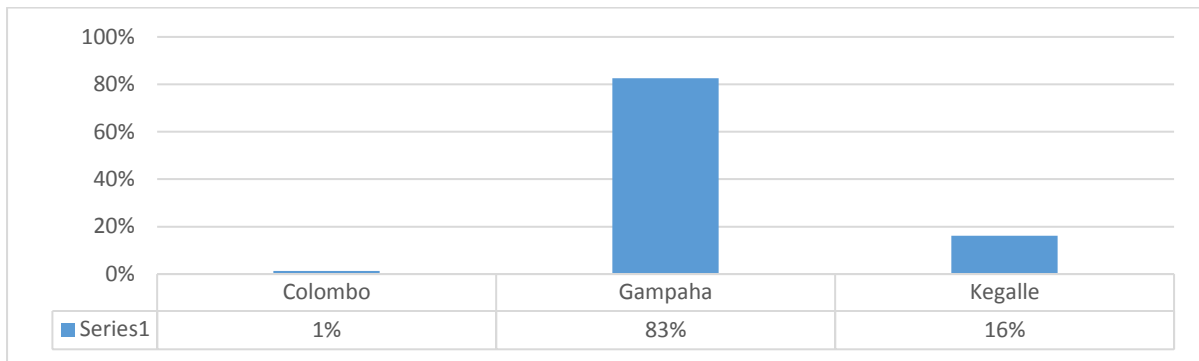
Table 41: Number of industries in the basin area

Type of Industries	Number of industries in the basin area			Total
	Colombo	Gampaha	Kegalle	
Mining and quarrying	1	271	4	275
Food, beverages, and tobacco	16	1,477	728	2,221
Textile, wearing, apparel, and leather	42	1,446	282	1,770
Wood, wood production, and furniture	23	490	158	670
Paper products and printing	10	208	49	267
Chemical, petroleum, rubber, and plastic	19	447	74	540
Non-metallic mineral products	1	1,590	17	1,607
Basic metal products, machinery, and equipment	5	2,108	19	2,132
Other manufacturing industries	6	7	238	251
Water works and supply	-	27	16	43
Overall total	122	8,071	1,584	9,777

(Source: District Statistical Hand Book - Department of Census & Statistics)

As per **Figure 35** below, the highest percentage of industries is reported in the Gampaha District (83%), followed by the Kegalle District (16%). Notably, even though the city of Colombo is considered as the economic capital of the country, not many industries are located within the project affected DSDs in the Colombo District – the Colombo District reportedly constitutes only 1% of industries located in the basin. Information on industries affected within each District is provided in **Table 37 of Annex 1**.

Figure 35: Distribution of industries in the impacted Districts

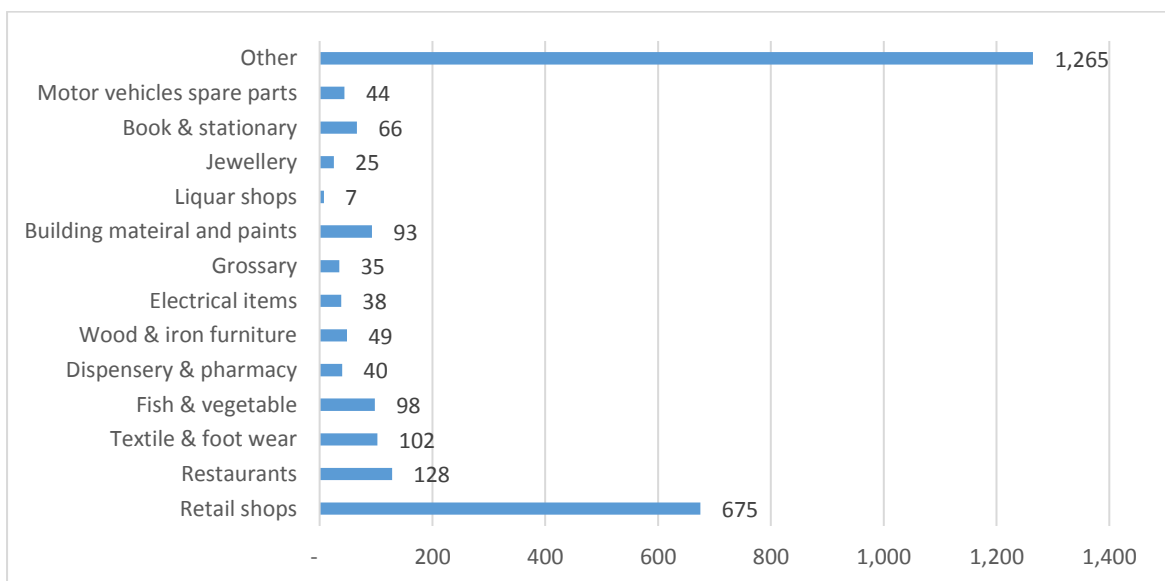


(Source: Department of Census & Statistics)

2.5.2 Registered commercial units

Commercial units in the basin area can be classified as retail shops; restaurants; textile and foot wear; fish and vegetable; dispensary and pharmacy; wood and iron furniture; electrical items; grocery; building material and paint shops; liquor shops; jewellery; books and stationary; motor vehicles spare parts; and other categories of sales units. Altogether, there are 2,666 registered commercial units in the impacted area of the Kelani River Basin. The DSD-wise data is provided in **Table 38 of Annex 1**.

Figure 36: Number of registered commercial units in the basin



(Source: District Statistical Hand Book - Department of Census & Statistics)

As shown in **Figure 36**, most of the commercial establishments are retail shops followed by restaurants, and textile and footwear shops. According to the Department of Census and Statistics, the “other” category includes any commercial unit outside the 13 categories specified and is insignificant in number. They include ayurvhetic centres, tailoring shops, watch repair shops, fruit sellers, beef stalls, pork stalls, ornamental fish stall, mobile vendors, picture sellers, toy sellers, and juice/water/drink sellers. **Table 42** presents information on each type of commercial unit across the three Districts.

Table 42: Distribution of commercial units in the impacted area

District	Colombo	Gampaha	Kegalle
Retail shops	64%	15%	33%
Restaurants	4%	5%	5%
Textile and foot wear shops	2%	4%	4%
Fish and vegetable shops	1%	4%	3%
Dispensary and pharmacy shops	3%	1%	1%
Wood and iron furniture shops	4%	1%	2%
Electrical items	2%	1%	1%
Grocery shops	2%	1%	1%
Building material and paints	6%	3%	2%
Liquor shops	0%	0%	0%
Jewellery	1%	1%	1%
Books and stationary	3%	2%	2%
Motor vehicles spare parts	3%	1%	1%
Other	4%	58%	44%
Total	100%	100%	100%

(Source: District Statistical Hand Book - Department of Census & Statistics)

While most of the commercial units are located in the Gampaha District (70%), there is significant variations across the three Districts. For example, retail shops dominate commercial establishments in the Colombo District (64% of all commercial units in Colombo), but in the Gampaha District, their portion is relatively small (15% of all commercial units). Similarly, the categories of 'other' are higher in the Gampaha District (58% of all commercial units) and the Kegalle District (44% of all commercial establishments), but significantly less in the Colombo District (4% of all establishments).

2.5.3 Other economic activities

Besides the commercial and industrial activities mentioned above, the Kelani River Basin is famous for gem and sand mining and clay extraction. Raw clay excavation is carried out in the middle and lower part of the basin for brick and pottery industries. Sand mining happens in most parts of the river and varies from small to medium scale extractions. Many people are employed in sand mining, especially in the lower reaches of the river. Notably however, most of these extractions are illegal and cause for heavy damage to river embankments, the river bed, and even to water extraction facilities at Ambatale.

2.6 Natural Resources in the Project Area

The entire Kelani basin area lies within the wet zone, and spans across an elevational gradient. As such the river basin supports three main vegetation types: tropical wet evergreen forest (lowland rainforests) in its lower to mid reaches, the sub-montane forests (in the middle to upper reaches), and montane forests at upper elevations.^{20 21} Due to the location of the basin in the wet zone of the country, droughts are rare, and a significant volume of water is present in the river throughout the year. As such, a high diversity of flora and fauna, including a large number of endemic and threatened plants and animals unique to the wet-zone of the country, can be found in the area.



(Source: Devan Sewell)

However, as mentioned in the section above on 'land use patterns,' since the lower and middle reaches of the Kelani river flows through the Colombo and Gampaha Districts, these segments of the river basin have a very high population density as well as industrial/commercial activities.

2.6.1 Fauna and Flora

As the Kelani River Basin falls within the wet zone, it is extremely rich in biodiversity with high species richness, many endemics and some point endemics, and high numbers of rare and threatened species. Although detailed work has not been carried out systematically across the entire river basin, a few studies covering a limited number of sites have demonstrated its biotic wealth. Among the recorded threatened species are :16 dragonflies, 23 butterflies, nine amphibians, 11 reptiles, 25 birds, and 28 mammals. With respect to fish, 27 nationally threatened fish species and includes eight critically endangered (CN), 15 endangered (EN), and four vulnerable (VU) species (IUCN database).

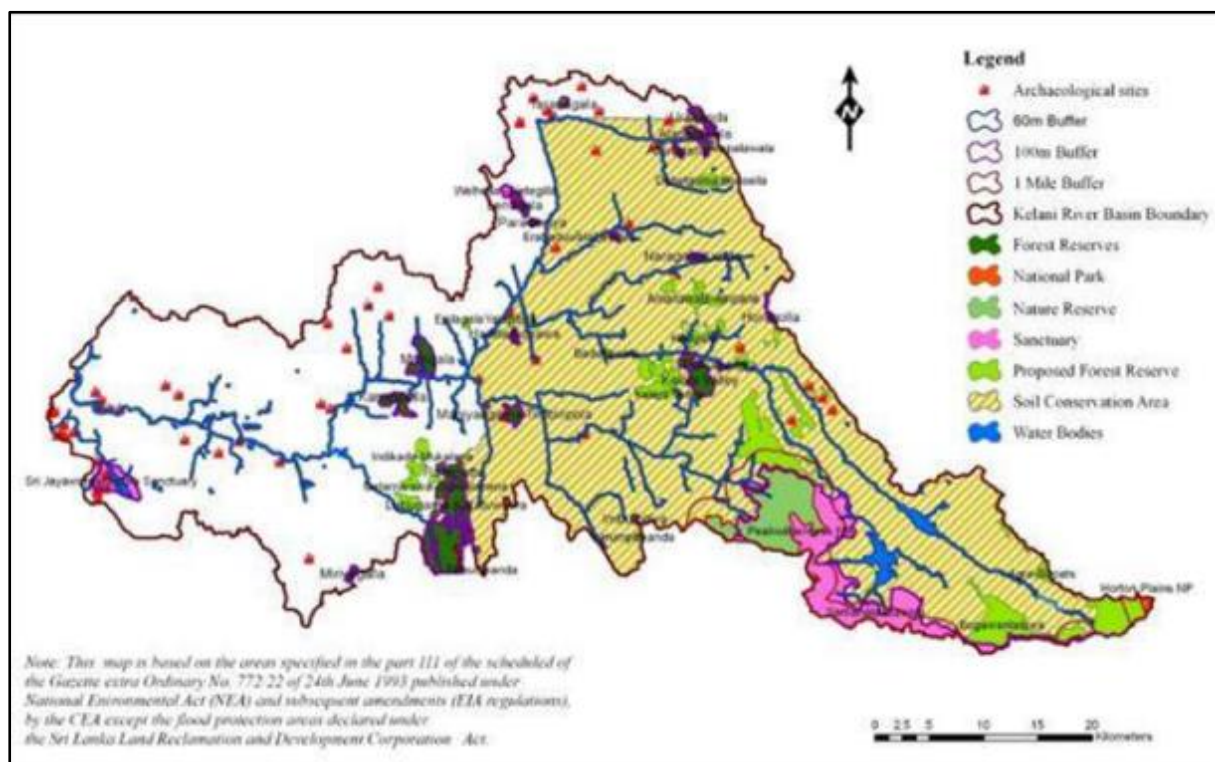
2.6.2 Protected Areas

As is the case in the entire wet zone, much of the natural habitats, particularly the lowland rainforests, are highly fragmented and remain as pockets in an urbanized landscape. Overall, the Kelani catchment has three wildlife sanctuaries (7,518 ha), 16 proposed forest reserves (11,423 ha), 13 forest reserves (2,585 ha), and a catchment area of 2,304 ha allocated for drinking water reservoirs.

²⁰ Jayasuriya, A. H. M., Kichener, D. J. and Biradar, C. M. (2006). Viability status of biosphere reserves in Sri Lanka . J.Natn.Sci.Foundation Sri Lanka 2011 39(4):303-319.

²¹ Goonatilake, S. de A., N. Perera, G.D. Silva, D. Weerakoon and A. Mallawatantri. 2016. Natural Resource Profile of the Kelani River Basin. International Union for Conservation of Nature Sri Lanka Country Office and Central Environment Authority, Colombo.

Figure 37: Protected areas within the Kelani basin



(Source: R & D, CEA based on Department of Wildlife / Forest department)

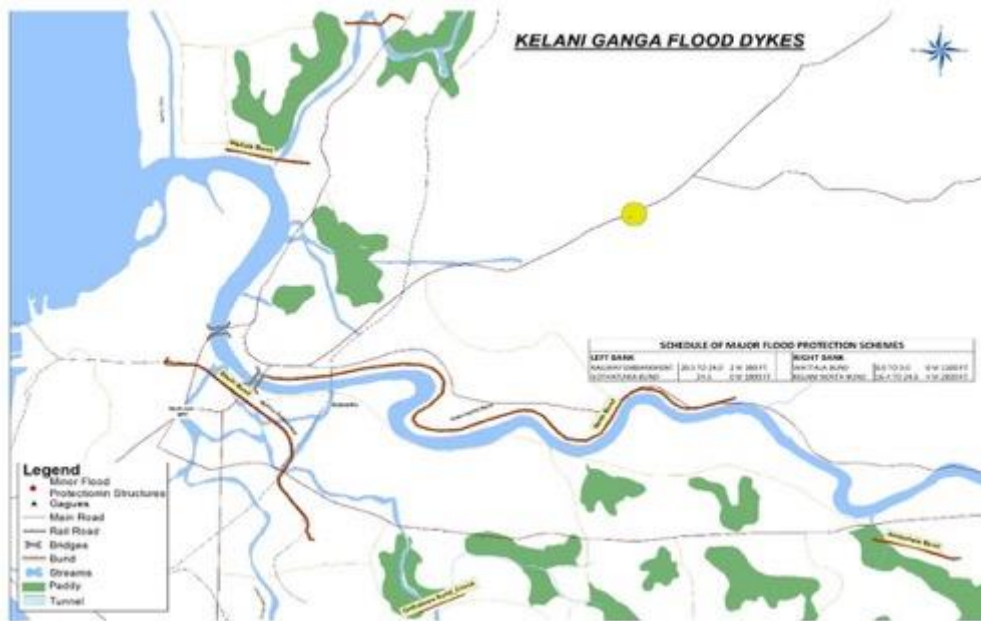
Of these sanctuaries and forest reserves, the Imbulpitiya and Kananpella forest reserves are located within close proximity to the proposed project interventions. However, many of the forests in the river basin are within the jurisdiction of the Forest Department or the Department of Wildlife Conservation (DWLC), and the Forest Department in particular is in the process of expanding the existing reservations which would have an impact on the project. Further, at the lower areas, particularly within the Colombo area, the SLLRDC proposes to holistically manage the urban wetlands as a protected area, particularly to safeguard flora and fauna displaced as a result of urbanization.

2.7 Other Development Interventions in the Project Area

2.7.1 Flood Protection

There are two flood dykes called the North Bund and South Bund which protect Colombo city from the Kelani river flooding. These flood bunds are very old structures which still play an important role in flood protection up to about a 10-year return period. The length of the North Bund is 2km and this bund mostly runs parallel to the right bank of the Kelani River. The South Bund is oriented at an angle to the river. In addition, there are four minor flood bunds called Mabola, Wattala, Gothatuwa, and Ambatale. Details of these flood dykes are given in **Figure 38** below.

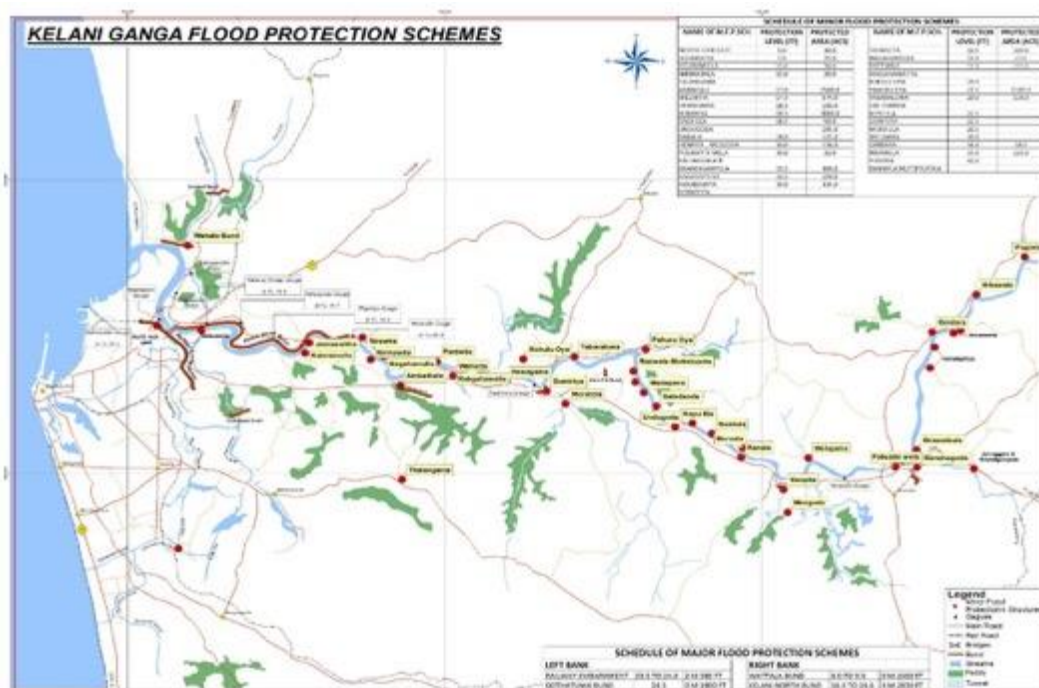
Figure 38: Details of the Flood dykes of the Kelani river



(Source: Irrigation Department)

From around Pugoda up to the river outfall, there are many minor flood protection schemes on both banks of the Kelani river. There are lateral gated structures which prevent water entering the sub-catchment areas of the minor flood protection schemes when the flood water level of the Kelani basin is high. When the Kelani river water level is low, and during local floods, the gates will be opened to drain out excess water into the Kelani river. Thus, these minor flood protection schemes play a very important role in irrigation and flood protection in the lower reaches of the Kelani river. The details of the minor flood protection schemes are given in **Figure 39** below.

Figure 39: Existing flood protection schemes in the Kelani river



2.7.2 Roads Network

There are several roads that run along the river banks, as well as several bridges closer to the town areas, that will have to be taken into consideration in the design of the flood protection works. The estimated affected lengths of each road and the category of affected roads are presented in **Table 43** below.

Table 43: Types of roads on the river bank affected

Bank	Area	Road Name	Class	Length (m)
Left Bank	Kaduwela to Hanwella	Colombo Hanwella Low level Road	Other	650.48
		Unknown	Other	1811.08
Left Bank	Kaduwela to the sea	Ambatale Road	Other	188.23
		Fergusons Road	Other	69.41
		Fergusons Road(Nagalagam Veediya)	Other	414.54
		Negombo Colombo Road	A	31.14
		New Kaduwela Biyagama Crossing	Other	31.18
		New Kandy Road avissawella Road)	B	15.15
		New Kelani Bridge	A	30.03
		Outer Circular Highway E2	E	31.64
		Senevirathnarama Road	Other	12.90

Bank	Area	Road Name	Class	Length (m)
		St.Mary's Lane	Other	7.61
		Unknown	Other	386.19
Right Bank	Kaduwela to Hanwella	Hanwella Malwana Road	Other	558.70
		Hanwella Malwana Dekatana Road	Other	120.46
		Unknown	Other	1230.52
	Kaduwela to the sea	Mattakkuliya Bridge	Other	13.14
		Negombo Colombo Road	A	30.19
		New Kaduwela Biyagama Crossing	Other	32.56
		New Kandy Road	B	16.49
		New Kelani Bridge	A	23.36
		New Kelani Bridge Road	A	8.29
		Old Kandy Road	Other	159.31
		Outer Circular Highway E2	E	33.20
		Preethipura Road	Other	7.94
		Senevirathnarama Road	Other	15.00
Unknown	Other	1037.09		

(Source: Google earth, Open Street Map)

According to the information in above table, a variation can be observed between the left and the right bank. Larger national roads and roads connecting urban centres are found on the left bank, which is closer to Colombo. More provincial roads affected are located on the right bank, which is more suburban. Further, the Road Development Authority (RDA) (the national institute under which Class A and B roads are developed, improved, and maintained), has plans to develop the Ambatale – Hanwella section of AB010 into a four-lane status road. Additionally, there are several bridges that would need to be considered in the design on the flood protection works. The number of bridges located between Hanwella and the river mouth are listed in **Table 44** below.

Table 44: Bridges on the river bank

Name	Class	Road type	Max. speed	Bank	Length (m)
Mattakkuliya Bridge		secondary	50	Both	175.82
Negombo-Colombo Road	A3	trunk	60	Both	225.40
New Kelani Bridge		trunk	60	Both	268.23
Senevirathnarama Road		tertiary	40	Both	141.10

Name	Class	Road type	Max. speed	Bank	Length (m)
New Kandy Road	B263	primary	60	Both	102.42
Unknown		residential	30	Both	121.39
New Kaduwela Biyagama Crossing		primary link	0	Both	244.35
Outer Circular Highway E2	E2	Expressway	100	Both	1068.63
Unknown		path	0	Both	126.25
Unknown		footway	0	Both	237.73
Unknown		residential	30	Both	22.33

(Source: Google earth, Open Street Map)

2.7.3 Water Intakes

The other key infrastructure facility located between Kaduwela and the river mouth is the water intakes of the NWS&DB for their water treatment plants at Ambathale and Biyagama. These two water treatment plants are the source of treated water to the Colombo Metropolitan Region. Also, there is a salinity barrier across the river at Ambatale, and four water supply lines (steel pipes) buried in the service corridors alongside the AB10 road in the sections of road that fall within the proposed embankment trace for Phase 1. They comprise two 500mm and two 750mm pipelines. The pipes are old and were laid in the 1920s or 1930s. Further, the NWS&DB has commenced construction of four new 1200mm water supply pipelines from Ambatale.

2.7.4 Urban housing

Over 50% of the Colombo city population lives in shanties, slums, or dilapidated old housing schemes, occupying 9% of the total land extent of the city. A recent survey carried out by the Urban Development Authority (UDA) has identified a total number of 68,812 families living in 1,499 community clusters (underserved settlements) which do not have a healthy environment for human habitation and access to basic infrastructure facilities, such as clean water, electricity, and sanitation. The UDA, under the Ministry of Megapolis and Western Development (MMDW), has launched an ambitious project to relocate these families in new housing schemes with acceptable standards. The project known as the “Urban Regeneration Programme” is considered one major step in the direction of transforming Colombo into a world recognized city with a clean and pleasing environment.

Figure 40: Proposed housing projects under the “Urban Regeneration Programme”



(Source: UDA web site)

2.7.5 Drainage system

The MMWD has also initiated a few projects to improve the drainage system within the Colombo Metropolitan Region. This includes rehabilitation and improvement of the St. Sebastian canal at the Nagalagam area.

Figure 41: Rehabilitation works of St. Sebastian canal out fall at Kelani river



2.7.6 Rue Castle and Wee Oya reservoirs

A section of the Deraniyagala – Noori (B93) road, which is about 5 km in length, is located within the foot print of the proposed Rue Castle reservoir. Along with this road section there are also four bridges across the Magal Oya and Seethawaka Oya in the proposed reservoir area (a new bridge is under construction to replace and old one). About 1 km of the Maliboda road is also within the reservoir footprint. Further, there is a mini-hydroelectric power plant located just below the suspension bridge.

Figure 42: Road sections inundated and affected villages



Figure 43: The new bridge under construction and the mini-hydroelectric power plant



Unlike the Rue Castle Oya, the Wee Oya reservoir area only borders the Yatiyanthota – Meenagala (B482) road and the access road towards the village in the valley (near Malapola Maha Vidyalaya).

Figure 44: Roads around Wee Oya reservoir



During the discussions held with Divisional Secretaries of the Deraniyagala, Bulathkohupitiya, and Yatiyantota DSDs, it was revealed that no development projects have been earmarked to be carried out within the footprint areas of these two reservoirs.

2.7.7 Broadlands project - Ceylon Electricity Board

The Broadlands hydropower project is located in the middle reaches of Kelani river basin near the confluence of the Maskeli Oya and the Kehelgamu Oya. The project entails the construction of:

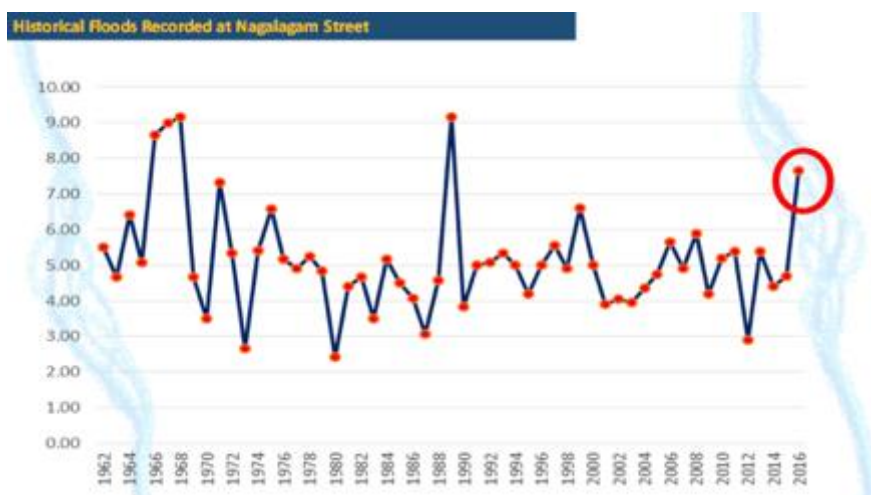
- 24 m high concrete gravity main dam.
- Concrete gravity diversion weir of height 19 m to be constructed on the Kehelgamu Oya.
- A run-of-the-river type power plant (35 MW)
- Construction of a 4 km long overhead power transmission line

There are various environmental and social impacts generated by the Broadlands Project, including adverse impacts on historical and monument landscapes and sites due to the diversion of the river flow, carbon storage costs and loss of forest cover. Negative socio-economic impacts include loss of recreational activities and water sports, loss of scenic view of the river, livelihood loss especially due to reduction in forest products such as fuel wood, medicinal herbs and edible foods, and reduction in the productivity of home gardens. One of the identified benefits however is the reduced dependency on coal power, reduction in carbon dioxide emissions, all of which are conducive to the human health as well as environmental health.

2.8 History of Natural Disasters

The Kelani river has been a subject of numerous disasters throughout history, with the oldest recorded disaster occurring during the period of King Kelanitissa in 200 BC. Due to the topography of the basin, flooding occurs mainly in the lowland area of the Colombo region. The rainfall events that occur in the eastern region of the basin (in the high slopes) generates a river flow with high velocity and pressure, which arrives at the low slope area after Hanwella (towards the river mouth) causing flooding in the downstream parts of the river. The Nagalagam Street's river gauging station takes recordings of flood events in the lower Kelani Basin Area, including their severity. The recordings indicate that, from 1837 to 2016, there have been a total of 27 flood events, with three critical floods and 17 dangerous floods²² (see Figure 45).

Figure 45: Kelani River flooding as recorded from Nagalagam Street



(Source: Ministry of Irrigation, 2017)

Specifically, as per the Project assessments done so far, some of the reasons for the very high flood damages reported in the basin are:

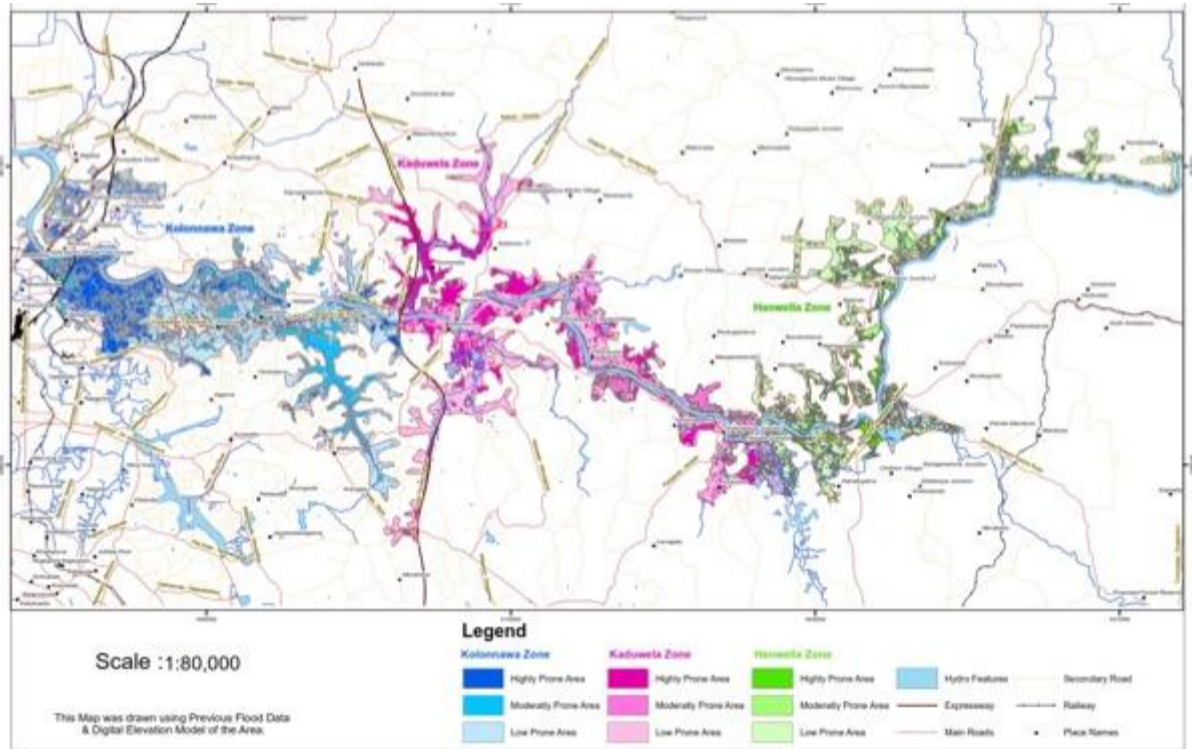
- Very high rainfall with intense storm events, mainly, but not entirely, due to the Southwest Monsoon;
- The high elevation of the upper catchment creating a steep river channel for most of its length;
- The abrupt change in slope around Hanwella, which is 35 km upstream of the sea, creating a situation of a high velocity flow entering a very low energy environment, creating ideal conditions for out of bank flow, or flood;

²² The classification of floods at Nagalagam gauge station are minor floods (level between 5 ft / 1.5 m and 7 ft / 2.1 m), major floods (level is between 7 ft / 2.1 m and 9 ft / 2.7 m), and severe flood (level exceeds 9 ft / 2.7 m). Gunasekara, I. P. A., "Flood Hazard Mapping in Lower Reach of Kelani River", Journal of Engineer Vol. XXXXI, No. 05, 2008.

- The high value of land and property in Colombo, creating conditions for high flood damage costs.

In addition, the ‘Sri Lanka Comprehensive Disaster Management Programme 2014-2018’, has also attributed the causes of recent flooding to poor land use patterns (such as deforestation, poorly planned cultivations, and uprooting bank vegetation), sand mining, and the mismanagement of solid waste that blocks canals, streams and drains and landfills.

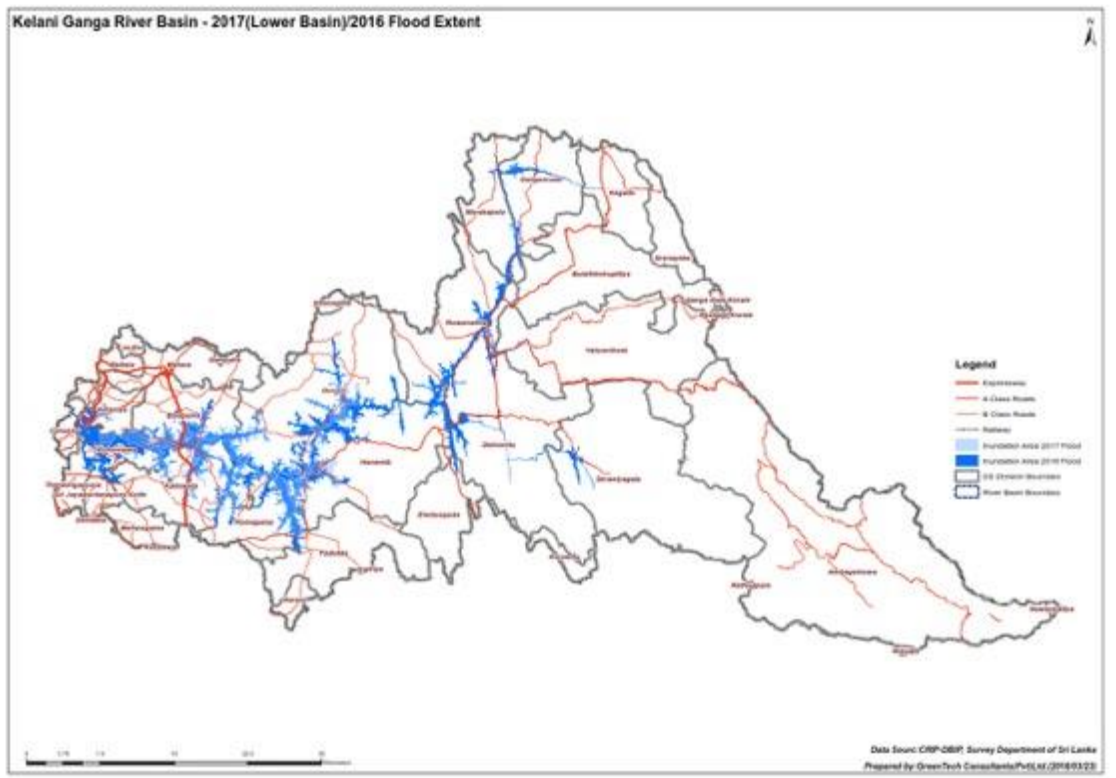
Figure 46: Map showing flood-prone areas in Kelani River Basin



(Source: Survey Department)

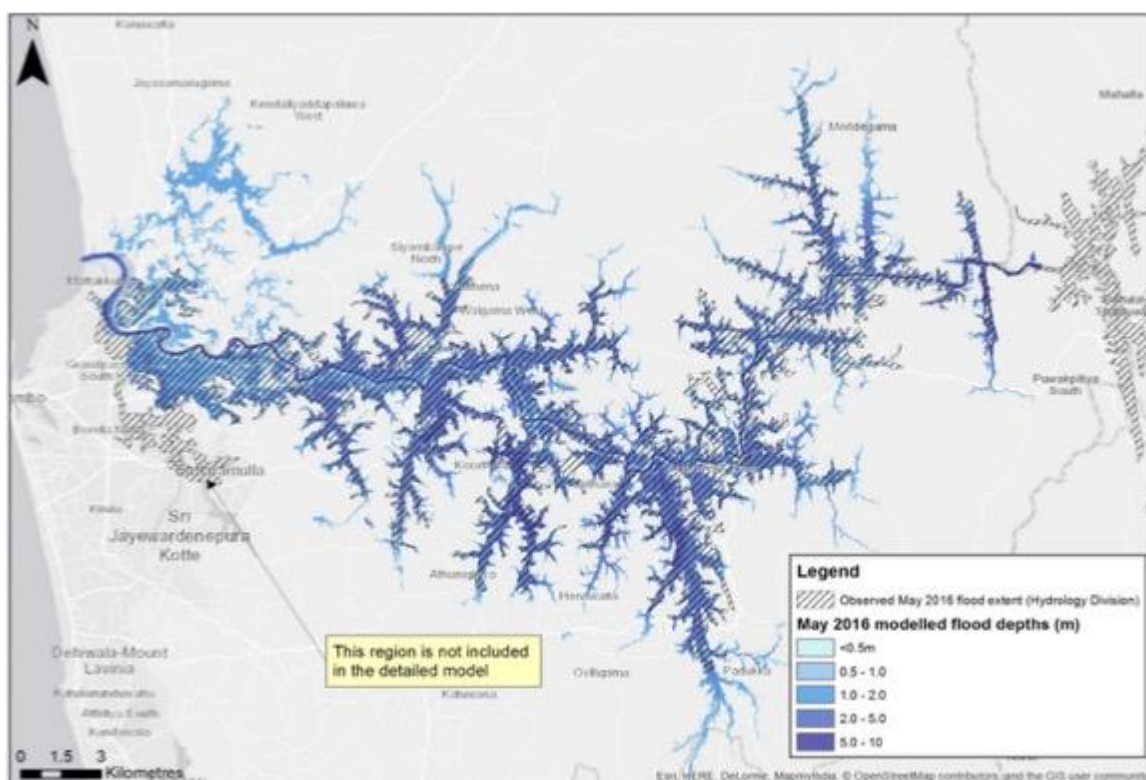
Additionally, compared to the past, the recent flood events have seen an increase in the number of lives lost, and the ‘Sri Lanka Comprehensive Disaster Management Programme 2014-2018’ has attributed these losses to high precipitation events and flash flood events.

Figure 47: Modelled and observed flood area for May 2016 for Kelani basin



(Source: CRIP DBIP, 2017)

Figure 48: Modelled and observed flood depths for May 2016 for Kelani basin



(Source: CRIP DBIP, 2017)

Table 45: Calculated qualitative frequencies of flood events in the lower Kelani River Basin

Since (Year)- Number of events equal to or greater than classification					
Flood Classification	Since 1837 (180 years)	Since 1917 (100 years)	Since 1967 (50 years)	Since 1997 (20 years)	Since 2007 (10 years)
Minor or >	27 (1:7)	21 (1:5)	5 (1:10)	2 (1:5)	2 (1:5)
Major or >	26 (1:7)	21 (1:5)	5 (1:10)	1 (1:20)	1 (1:20)
Dangerous or >	20 (1:9)	14 (1:7)	2 (1:50)	0 (n/a)	0 (n/a)
Critical or >	3 (1:60)	2 (1:50)	0 (n/a)	0 (n/a)	0 (n/a)

(Source: CRIP DBIP, 2017)

Overall, these flooding incidents have almost always caused significant economic and property losses due to the high density and congestion of the population and developments in the Colombo area. During the major flood in 1989, where the flood wave kept travelling between Hanwell and the river mouth for 33 hours, high damages occurred above the North Bund where the water travelled above the bund and also along the major towns where the flood wave travelled. Damages occurred in various degrees on properties, public utilities, public infrastructure, road network, bridges and culverts, and

other infrastructure and built items. Reported damages during the major flood in 1989 were as follows and the total damage during this flood is estimated to be around LKR 10 million:

- 150,000 families displaced;
- 35,000 houses destroyed;
- Damages to roads, structures, telephone, and electricity lines;
- Destruction of Coconut, rubber and Paddy cultivation of an extent of 12,000 acres.

In comparison, the May 2016 May led to the following losses in the Colombo and Gampaha Districts:

Colombo District

- The flood affected 228,871 persons in 54,248 families within 10 DS Divisions (Colombo, Homagama, Kaduwela, Kesbawa, Kolonnawa, Kotte, Maharagama, Padukka, and Seethawaka).
- The worst damages observed were in Kolonnawa, where 155,062 people were affected.²³ This was 81% of the total population in the DSD.²⁴

Gampaha District

- The flood affected 74,003 persons in 17,485 families within 13 DS Divisions in the District.
- 10 divisions out of the 13 are within the Kelani River Basin area (Attanagalla, Biyagama, Dompe, Gampaha, Mahara, Ja-Ela, Kelaniya, and Wattala DSDs).

²³ Kolonnawa DS division reported the severest damages in the country as well.

²⁴ (Source: Ministry of National Policies and Economic Affairs and Ministry of Disaster Management, 2016 from Draft SEA report for Kelani basin).

3. SOCIAL IMPACT ANALYSIS

This chapter provides an analysis of the social impacts arising from past disasters that occurred in the Kelani River Basin, with specific reference to project intervention areas and potential impacts from the proposed CRes MPA. Both beneficial and adverse social impacts of the proposed interventions (including no project) are discussed.

3.1 Impacts Due to Natural Disasters in the Past

Floods are defined as the temporary inundation of an area of land, which otherwise is not usually under water. Rain in 2016 May was recorded as the heaviest recorded rainfall in more than 18 years in most parts of the country. The worst flooding occurred in the Districts of Colombo and Gampaha, which were mostly affected because of the rising level of the Kelani river. Floods in the Colombo District affected more than 228,871 members of 54,248 families in the 10 DSDs of Colombo (the Homagama, Kaduwela, Kesbawa, Kolonnawa, Kotte, Maharagama, Padukka, Seethawaka, and Thimbrigasyaya DSDs). By far the worst affected DSD countrywide was the Kolonnawa DSD, where 155,062 people were affected (81% of the total population in the DSD). Similarly, floods in the Gampaha District during 2016 affected 74,003 members of 17,485 families in the 13 DSDs (the Attanagalla, Biyagama, Divulapitiya, Dompe, Gampaha, Jaela, Katana, Kelaniya, Mahara, Meegamuwa, Meerigama, Minuwangoda, and Wattala DSDs). The worst affected DSD in the Gampaha District was the Ja ela DSD, where 31,225 people were affected (16% of the total population of the DSD).

Damage caused to lives and private and public property was the main issue, mainly in the river basin and in particular the downstream stretches from Pugoda to the river mouth. Floods have also occurred in the areas identified for Ruecastle and We Oya reservoirs. **Table 46** presents a summary of number of persons affected due to floods and drought in the entire river basin area from 1989 to 2016.

Table 46: Number of people affected by floods and droughts

Year	Impact of Flood		Impact of Drought
	<i>Number of people affected</i>	<i>Number of lives lost</i>	<i>Number of people affected</i>
1989	99,636	3	0
1990	1,931	0	0
1991	31,866	0	0
1992	69,682	0	0
1993	13,287	0	0
1994	19,654	0	0
1995	6,603	0	0
1996	11,615	0	0
1997	1,294	1	0

Year	Impact of Flood		Impact of Drought
	Number of people affected	Number of lives lost	Number of people affected
1998	1,537	0	0
1999	32,374	0	0
2000	0	0	0
2001	0	0	7,215
2002	1,654	0	0
2003	3,232	3	0
2004	2,879	0	0
2005	93,174	4	0
2006	129,458	7	0
2007	60,694	5	0
2008	203,550	3	0
2009	20,410	1	0
2010	364,520	4	0
2011	27,574	10	0
2012	94	2	2,012
2013	27,640	1	0
2014	22,933	6	0
2015	4,152	4	0
2016	302,874	8	33,962
Total	1,467,357	62	43,189

Source: Disaster Management Centre

The Kelani river (between the river mouth and up to Pugoda) also faces problems of flooding, mainly due to blockages and inadequacies of the outflow mouths of tributaries that drains in to Kelani river. This situation is more prominent in Malwana town area, where the existing flood control gate on the tributary at Malwana is inadequate in functionality and due to the stream meandering at the final stretches of this tributary (as shown in **Figure 49**).

Figure 49: Meandering of the lower reaches of the tributary at Malwana



Although some parts of the river basin had experienced droughts, consultations with the Divisional Secretaries of the DSDs and community members who live in the same areas confirmed that the proposed project intervention areas have not been affected by droughts yet.

The following sections present some of the social impacts that occurred due to flood events, especially along the river embankment areas from Pugoda up to the river mouth at Mattakkuliya.

3.1.1 Temporary Displacement from Settlements

Temporary displacement, due to the rising water level of the Kelani river, is one of the pressing concerns for those who live along the river bank and flood plain (especially from Kaduwela up to the river mouth). The households close to the river bank in Mahawatte, Sedawatta, Pattiya West, Peliyagoda, Peliyagoda Pattiya East, Pethiyagoda Gangabada, Mewella, and Kelani Mulla are highly prone to this issue.

Figure 50: Public affected due floods in the Kelani river



However, the provisions for temporary shelters are limited. The Sri Lanka Post Disaster Needs Assessment Report for May 2016 Floods and Landslides²⁵ reveals that 42 safety centres in the Colombo District, 97 in the Gampaha District, and 23 in the Kegalle District were established to accommodate flood affected families. These are, nevertheless, deemed to be insufficient. The initial relief work cost for the Colombo District was Rs. 37 million, for the Gampaha District was Rs. 34 million, and for the Kegalle District was Rs. 8 million. During public consultations, it was mentioned that most of the households find refuge in nearby temples and other religious places or put up temporary huts/tents on the existing flood bund (North Bund), which stretches from Peliyagoda up to Kaduwela. Prolonged flooding and non-availability of an early warning system has worsened the issue of temporary displacement.

Figure 51: Flood affected houses and temporary huts



3.1.2 Damage and loss to property including movable assets

Frequent floods have also led to significant damages and loss to properties, including movable assets of the affected people. Affected structures vary from housing units made with bricks to cemented structures with tiled floors to simple huts made out of wood planks. As seen from the **Table 47**, the number of houses damaged by floods between 1989-2016 ranged from 0 to over 6,000 houses per annum, and averaged around 550 houses per annum. Similarly, the number of houses destroyed varied from 0 to over 3,000, and averaged about 175 houses per annum²⁶.

Table 47: Houses damaged by floods between 1989-2016

²⁵ The Sri Lanka Post Disaster Needs Assessment Report for May 2016 Floods and Landslides By Ministry of Disaster Management and Ministry of National Policies and Economic Affairs, November 2016

²⁶The number of houses destroyed per annum is significantly distorted by the very high number of houses demolished by landslides in 2003. If 2003 data is excluded, the average number of houses destroyed falls to 60 per annum.

Year	Number of houses damaged	Number of houses destroyed	Repair cost of houses damaged (LKR Million)	Replacement cost of houses destroyed (LKR million)	Economic value* of house losses (LKR million)
1989	6,032	18	5,932	54	5,986
1990	500	0	492	0	492
1991	0	0	0	0	0
1992	372	0	366	0	336
1993	225	0	221	0	221
1994	0	0	0	0	0
1995	62	24	61	65	126
1996	0	0	0	0	0
1997	44	0	43	0	43
1998	0	0	0	0	0
1999	458	158	450	0	450
2000	0	0	0	0	0
2001	0	0	0	0	0
2002	0	0	0	0	0
2003	713	3,172	701	9,453	10,154
2004	0	0	0	0	0
2005	2,870	141	2,822	420	3,243
2006	473	189	465	563	1,028
2007	508	78	500	232	732
2008	240	502	236	1496	1,732
2009	4	19	4	57	61
2010	1,715	247	1687	736	2,423
2011	63	10	62	30	92
2012	25	8	25	24	49
2013	15	4	15	12	27
2014	590	154	580	459	1,039
2015	79	26	78	77	155
2016	242	29	255	92	347

(Source: Disaster Management Centre, * Economic values expressed in constant 2015 prices.)

With regard to the total economic value of houses lost (both damaged and destroyed), it is estimated that the economic losses varied from LKR 0 million to LKR 10,150 million per annum. Overall, the annual economic losses averaged about LKR 1,050 million, with damaged houses accounting for LKR 545 million (52%) and destroyed houses accounting for a further LKR 505 million (48%). Further, the total economic value of the damage to household contents/vehicles due to flooding within each year ranged from LKR 0 million to LKR 2,075 million per annum, and averaged around LKR 215 million per annum.²⁷ The total economic value of house damages and destroyed, plus the loss of house contents/vehicles, is estimated to average around LKR 1,243 million per annum.

Figure 52: Picture inside an inundated house and army personnel helping to clean a shop



3.1.3 Health Risks and Food Insecurity

Many of the semi-permanent housing units in the Colombo District are located within reservation areas, which is more prominent along the river bank of Kelani river. Communities living in these types of housing units use common toilets. Further, while they have access to treated water for drinking and cooking supplied from the NWS&DB through public water points and/or direct supply to the housing units, households living primarily in the reservation areas use water from the river for washing and bathing purposes. During flood events, the water supply facilities are interrupted and most of these water sources get contaminated with faecal matter causing significant health issues to the public. According to statistics of Flood impacts of the 2016 floods, more than 40% of the affected communities did not have access to safe drinking water.

Flood issues often cause interruptions to day-to-day income generating activities of many people living along the river bank. For paddy production, data from the DMC on the areas of paddy land affected by flooding in 1989-2014, as well as the estimated paddy production losses for each year and the farm gate paddy prices, were used to determine the annual economic value of crop losses caused by flooding.

²⁷ The estimated value of the household assets (including house contents and vehicles) lost to flooding was then estimated by applying the following factors to the values of house damage for each house type: 0.20 for permanent houses, 0.25 for semi-permanent houses, and 0.30 for temporary houses.

Table 48: Economic value of crop production losses due to floods

Year	Paddy area affected (ha.)	Paddy production losses (tonne)	Value of paddy production losses (LKR million)*
1989	8,699	71,980	2,249
1990	0	0	0
1991	0	0	0
1992	4,531	37,492	1,171
1993	0	0	0
1994	0	0	0
1995	0	0	0
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001	0	0	0
2002	0	0	0
2003	82	679	25
2004	29	240	8
2005	12	99	3
2006	139	1,150	36
2007	0	0	0
2008	205	1,696	62
2009	80	662	25
2010	172	1,423	44
2011	15	124	4
2012	124	1,026	32
2013	0	0	0
2014	1	8	0
2015	NA	NA	NA
2016	NA	NA	NA

*Crop production valued at average 2015 farm gate prices of LKR 31,240 per ton

Results indicate that the area of paddy affected by floods range from 0 to 8,700 hectares per annum, and averaged around 540 hectares per annum. Similarly, paddy production losses were estimated to vary from 0 to 72,000 metric tonnes per annum, and averaged over 4,800 metric tonnes per annum. With regard to the economic value of crop losses, it is estimated that an average of over LKR 140 million per annum has been lost between 1989- 2014 (ranging from LKR 0 million to LKR 1,170 million). Crop losses are not available for 2015 and 2016.

The temporary loss of shelter during significant flood events, coupled with the loss of income (see Section 3.1.6 on 'Aggregate GDP and Income Losses') and reduction in food production, leads to issues of food security for most of the flood affected families. Added to this is the fact that recurrent exposure to flood issues cause psychological stress to most people living in the river bank, especially when flood relief efforts are deemed to be inadequate. As a 69 year old female resident of Biyagama Road, Pattiya, Kelaniya stated, flood relief efforts from the government (providing health and food) in Kelaniya has gradually reduced during the past few years, thus causing a major strain on communities

living in the river banks. The 2016 floods caused most people living in areas, like Sedawatta, to take refuge on Victoria bridge and the New Kelani bridge and the dire conditions there led many to protest against the government.

Figure 53: Housing units and toilets flooded and flood relief being distributed to affected people



3.1.4 Accidents and Deaths

As indicated in **Table 46**, eight deaths have been recorded in the project intervention areas due to floods in 2016. Oftentimes, the sudden collapse of structures due to floods or drowning are the main reasons for such fatalities. In existing records, disaggregated information on fatal accidents, due to building collapses or drowning, is not available. Community members are of the view that deaths due to drowning is a rare incident along the stretch of the Kelani river bank where the project interventions are likely to be implemented, because people are able to swim. For instance, a 49 year old woman from Ferguson Road stated that in her younger days she could swim from one bank to the other with ease.

3.1.5 Damages to Infrastructure and Industries

Damages caused to infrastructure and industries along the stretch of the Kelani river due to floods have not been properly documented by agencies such as the Disaster Management Center (DMC). However, observations and consultations carried out along the stretch of the Kelani river where interventions under the CRes MPA are proposed indicated that some of the main roads parallel to the river and industries along the river have been affected (damaged) during extreme storm events where local flooding had occurred due to drainage inefficiencies of the tributaries and drainage paths. Likewise, erosion of the river embankment is another factor that affected (damaged) most of the road sections parallel to this stretch of the river.

Figure 54: A gabion structure put along a section of river bank



In 2016 alone, the PDNA Report for the May 2016 Floods and Landslides assessed the damages to industry and commercial structures at LKR 2,652.47 million and LKR 2,324.09 million in losses. The PDNA Report further assessed that the prolonged submergence of structures of any kind could lead to structural failures in the future. This is more evident in Malwana town area where there are many structures constructed along the river bank (mostly used for commercial activities). Already, the flood events of the past have not only damaged the structures but also the goods/products used for daily merchandize in the town.

3.1.6 Aggregate GDP and Income Losses

Estimates of the social and economic losses resulting from the disruption and dislocation of socio-economic activities caused by flooding were not available at the DMC. Consequently, an alternative methodology was adopted to estimate the indirect economic losses and the impacts of flooding on the annual Gross Domestic Product (GDP)²⁸. A number of assumptions, however, had to be made. First, the areas subject to flooding would lose their economic productivity for the duration of the flood. Second, the GDP generated in a particular geographical area (e.g. province or basin) is directly proportionate to the population (if an area accounts for 1% of the population, it will also account for 1% of the GDP). Third, the annual GDP is produced evenly throughout the year. Given these assumptions, an estimation of the indirect socio-economic losses due to flooding was calculated using the following equation:

Annual indirect losses of flooding (AL) = Provincial GDP per capita per day (PGDP (D)) x number of days the basin is flooded (DBF) x number of people affected (PA)

$$[AL = PGDP (D) \times DBF \times PA]$$

Accordingly, the annual GDP loss due to flooding was calculated for each year in 1989-2015, and the results of the analysis is presented in the **Table 49** below. The results indicate that, with regard to the

²⁸ The GDP approach to estimating indirect economic losses due to flooding was adopted in "Climate Risks and Adaptation in Asian Coastal Megacities: A Synthesis Report", World Bank, September 2010.

indirect impact of floods, the annual GDP lost is estimated to range from LKR 1.56 million in 2012 to LKR 11,562 million in 2010, and averaged LKR 1,599 million per annum in the period 1989-2016.

Table 49: Reduction in gross domestic product due to indirect impact of floods

Year	Annual GDP per capita (LKR)	GDP per capita per day (LKR)	No. of days of flooding	No. of people affected	Annual GDP lost (LKR Mn)
1989	236,145	646.97	15	99,636	966.93
1990	248,298	680.27	6	1,931	7.88
1991	255,755	700.70	12	31,866	267.94
1992	263,686	722.43	33	69,682	1661.23
1993	278,637	763.39	18	13,287	182.58
1994	291,218	797.86	24	19,654	376.35
1995	304,481	834.19	14	6,603	77.11
1996	313,691	859.43	12	11,615	119.79
1997	331,726	908.84	12	1,294	14.11
1998	345,389	946.27	15	1,537	21.82
1999	358,163	981.27	18	32,374	571.82
2000	0	0.00	0	0	0.00
2001	0	0.00	0	0	0.00
2002	380,254	1041.79	6	1,654	10.34
2003	399,802	1095.35	14	3,232	49.56
2004	418,414	1146.34	14	2,879	46.20
2005	441,180	1208.71	29	93,174	3266.00
2006	471,434	1291.60	56	129,458	9363.65
2007	499,688	1369.01	13	60,694	1080.18
2008	525,439	1439.56	27	203,550	7911.60
2009	539,947	1479.31	16	20,410	483.08
2010	578,852	1585.90	20	364,520	11561.82
2011	622,797	1706.29	46	27,574	2164.27
2012	674,624	1848.28	9	94	1.56
2013	692,278	1896.65	6	27,640	314.54
2014	719,340	1970.79	31	22,933	1401.08

Year	Annual GDP per capita (LKR)	GDP per capita per day (LKR)	No. of days of flooding	No. of people affected	Annual GDP lost (LKR Mn)
2015	746,757	2045.91	12	4,152	101.94
2016	775,215	2123.87	6	215,914	2751.44

*Economic values expressed in current market prices

Household income and poverty data were gathered from the Central Bank of Sri Lanka (CBSL) in order to estimate the impact of flood events on the income of households below the poverty line during 1989-2016. The estimated loss of annual income of poor households, i.e. average household income per day into the number of days the basin is flooded, is shown below.

Table 50: Loss of annual income of poor households due to floods

Year	Average Income per day of low-income HHs (LKR)	Number of days of flooding in Kelani basin	Loss of annual income for low-income HHs (LKR Mn)
1989	118.30	15	1.883
1990	118.30	6	0.037
1991	118.30	12	0.602
1992	118.30	33	3.969
1993	118.30	18	0.479
1994	118.30	24	0.705
1995	215.86	14	0.298
1996	215.86	12	0.481
1997	215.86	12	0.107
1998	215.86	15	0.125
1999	215.86	18	1.351
2000	426.76	0	0
2001	426.76	0	0
2002	426.76	6	0.114
2003	668.26	14	0.596
2004	876.20	14	0.4
2005	876.20	29	18.544
2006	876.20	56	62.835
2007	1215.00	13	7.229
2008	1215.00	27	32.054

Year	Average Income per day of low-income HHs (LKR)	Number of days of flooding in Kelani basin	Loss of annual income for low-income HHs (LKR Mn)
2009	1215.00	16	1.656
2010	1540.00	20	64.134
2011	1540.00	46	5.978
2012	1540.00	9	0.007
2013	1540.00	6	2.194
2014	1540.00	31	3.005
2015	1540.00	12	0.33

(Source: DMC and Consultants' estimates) N.B. Household income expressed in current market prices.

Results shown in the **Table 50** above indicate that the impact of floods has a significant impact on the incomes of poor households within the basin, with average annual income falling by LKR 32,340 during 2010-2015 and LKR 12,814 per annum during 1989-2015 period. This represents about 5% of the household income. During major flood events, when income losses could rise to over 15% of annual the household income, a substantial number of poor and vulnerable households are unable to meet their living costs and become destitute. Poor households then have to rely on the government and other relief agencies to compensate for their deprivation.

3.1.7 Impacts Due to Floods in the Proposed Reservoir Areas

In order to bring the level of flood protection in the Kelani river basin closer to 1 in 100-year flood protection, the construction of reservoirs to capture and retain the flood waters generated in the upper catchment, is also considered as important. In this regard, the two possibilities include the Wee Oya reservoir and Ruecastle reservoirs. While these reservoirs are envisaged to be designed as multi-purpose reservoirs both to retain flood water as well as to serve as buffer for drinking water supply to metro Colombo region, impacts of flooding in these reservoirs is also an important consideration. Loss of access to roads for the residents in the left bank land area of Magal Oya, a tributary of the Seethawaka Oya, which ultimately flows in to Kelani river, is one of the major issues faced by the people in the Ruecastle area during flood events. During the site visit, it was observed that a new bridge is being constructed at a much higher level (than the existing one) which would allow people to access the roads even under higher flood levels.

Figure 55: A new bridge being constructed across Magal Oya



So far, no major property damage was reported due to flood events along the Magal Oya. However, a shop which is located on the approach of the bridge on the Nakkawita – Maliboda road and a mini-hydro power plant located further downstream have been frequently affected by flash floods. The 43 year old owner of the shop recalled that the flash floods had washed his shop twice since he had opened it.

Figure 56: Shop and and mini-hydro power plant



It was observed that sand mining is being carried on the Magal Oya. A 47 year old man from Anhettigama, who works in one such sand quarry, stated that during floods, mining activities cannot be carried out. He explained that many male villagers are involved in this activity as their main source of livelihood and experience loss of income during such periods. It was also observed that these sand quarries are operated with the approval from Geological Survey and Mines Bureau and the owners of such quarries also experience loss of income during such flood periods.

Figure 57: Villagers involved in sand mining



As compared to the Ruecastle area, the area selected for Wee Oya reservoir is less populated. There are only a few houses with home gardens and some agricultural land. It was stated by the public that no property damages have occurred due to flood events within this area.

Figure 58: View of the land area considered for the Wee Oya reservoir



3.2 Adverse Impacts Due to Proposed Interventions

3.2.1 Land Acquisition and Displacement of people

3.2.1.1 Flood embankment

The proposed flood defence system from Pugoda (on the right bank) and Ranwala (on the left bank) up to the river mouth will involve the construction of flood embankments. There will also be some need to improve the confluences of tributaries that flow into the Kelani river between these river stretches. Such interventions will need to acquire strips of land along the river embankment which

will cause the displacement of people. **Tables 51 and 52** below presents the impacted GN Divisions and the land extent that will be affected due to proposed flood embankment.²⁹

Table 51: Identified spatial extent of embankment - left bank

Area	District	DS Division	GN Division	GN Code	Area (ha)
Pugoda to Hanwella	Colombo	Hanwella	Niripola	438	36
			Kudagama	432A	0.27
			Kahatapitiya	435	30.63
			Kanampella East	425	9.41
			Ihala Hanwella North	443	46.25
			Suduwella	436A	32.39
			Hanwella Town	443B	5.88
			Kaluaggala	436	12.19
			Akarawita	434	26
			Bollathalawa	433	50.15
			Kanampella West	425A	20.74
			Gira Imbula	435A	26.64
			Eswatta North	429	4.07
Kiriwandala North	431B	6.97			
Hanwella to Kaduwela	Colombo	Hanwella	Hanwella Town	443B	1.23
			Pahala Hanwella	445	19.39
		Homagama	Atigala East	446	1.09
			Henpita	451	1.49
			Jalthara	449	3.87
		Kaduwela	Ihala Bomiriya	471	7.91
			Kaduwela	473A	1.98
			Nawagamuwa	470	4.53
			Pahala Bomiriya	472A	10.72
			Ranala	469	8.23
Wekewatta	471A	10.98			
Kaduwela to Sea	Colombo		Madmpitiya	C19	0.54
			Mahawatta	C20	0.53
			Mattakkuliya	C26	4.29
			Sammanthranapura	C32	0.95

²⁹ The impact on land area has been assessed based on the preliminary design trace available the embankment from Hanwella town to Kaduwela bridge. From Kaduwela to river mouth and section from Hanwella to Pugoda was estimated using the 50 feet reservation concept of Irrigation Department.

Area	District	DS Division	GN Division	GN Code	Area (ha)
		Kaduwela	Hewagama	474	0.63
			Kaduwela	473A	1.34
			Raggahawatta	474A	2.15
			Welivita	475	2.77
		Kolonnawa	Ambathale	501A	2.61
			Halmulla	509C	3.12
			Kelanimulla	504	3.46
			Kittampahuwa	508	1.12
			Kuda Buthgamuwa	506A	0.94
			Maha Buthgamuwa B	506C	1.57
			Mulleriyawa North	501	0.99
			Sedawatta	509A	2.13
			Wennawatta	507	0.66
Total Area				281.74	

Table 52: Identified spatial extent of embankment - right bank

Area	District	DS Division	GN Division	GN Code	Area (ha)
Pugoda to Hanwella	Kegalle	Ruwanwella	Palle Kanugala	102B	6.14
			Medagoda	103	2.44
	Gampaha	Dompe	Thittapattara	417	23.8
			Kapugoda	418A	37.57
			Nikawela	418	9.03
			Ranwala	379A	0.77
			Udugama	423	11.55
			Wedagama	379D	13.85
			Pattiyagama	421	0.05
			Ovitigama	420	18.74
			Senasungoda	424	10.9
			Udakananpella South	424B	10.11
			Samanabedda	416	13.15
			Poogoda	422	4.86
			Kumarimulla	419	15.23
			Giridara	407	2.36
			Gampaha	Biyagama	Biyagama East

Area	District	DS Division	GN Division	GN Code	Area (ha)
Hanwella to Kaduwela			Biyagama South	280/C	0.14
			Malwana Town	281/C	6.41
			Yabaraluwa North	280/A	1.97
			Yabaraluwa South	280/E	1.28
		Dompe	Lansiyahena	415A	1.05
			Malwana	413	2.32
			Pahala Mapitigama	412	8.57
			Samanabedda	416	1.58
			Samanabedda North	416A	8.77
			Udamapitigama	414	8.95
			Udamapitigama South	414A	12.23
		Welgama	415	9.01	
		Kaduwela to Sea		Biyagama	Biyagama South
Bollegala	278A				3.05
Gonawala West	277/A				0.76
Mabima West	276A				2.43
Pattivila South	279/A				0.41
Thalwatta	278				1.42
Kelaniya	Kelaniya			264	2.25
	Mewella			262A	3.69
	Pattiya North			173B	0.2
	Pattiya West			173A	0.96
	Peliyagoda Gangabada			174	2.16
	Peliyagoda Gangabada East			174B	1.05
	Peliyagoda Pattiya East			173	0.4
	Peliyagodawatta			174A	1.26
	Pilapitiya			263A	0.83
	Sinharamulla			263	2.41
Wattala	Galwetiya			176B	1.37
	Hekitta			169	1.51
	Palliyawatta South			168	0.94
Total area					368.08

As per the tables above, a total of 650 hectares of land is likely to be affected due to the construction of the embankments. Further, the GN divisions that are likely to be more affected (GN divisions where greater than 10 hectares of land area is likely to be affected) include: Gira Imbula, Pahala Hanwella,

Pahala Bomiriya, and Wekewatta along the left bank, and Thittapattara, Kapugoda, Udugama, Wedagama, Udakanampella South, Samanbedda, Kumarimulla, and Udamapitigama South on the right bank.

The **Table 53** below presents the estimated number of housing units and population that would be displaced due to the proposed intervention. Estimation of displaced population is based on national average of 3.9 persons per each housing unit.

Table 53: Estimated affected numbers of households

River Bank	Building Type	Total	Estimated number of households to be affected
Left Bank	Housing Scheme More than 100 Houses	88	343
	Individual Private Houses / Dwelling Houses	444	1732
	Low Income Houses	254	991
Right Bank	Individual Private Houses / Dwelling Houses	479	1868
	Low Income Houses	277	1080

(Source: Google earth, Open Street Map)

Table 54 below presents the impact on existing land use by the flood defence intervention.

Table 54: Land use extents by category – affected buffer zone

Land Use Category	Extent (ha)	Percentage
Built Up	0.5	0.0
Homestead	778.6	49.0
Industrial Sites	25.6	1.6
Coconut	34.0	2.1
Rubber	51.0	3.2
Mixed Tree Crops	69.5	4.4
Paddy	0.2	0.0

Land Use Category	Extent (ha)	Percentage
Rambutan	34.8	2.2
Cinnamon & related	10.9	0.7
Associated Non Agricultural	10.4	0.7
Forest Plantation	3.0	0.2
River	130.0	8.2
Other water bodies	3.0	0.2
Scrubland	388.0	24.4
Unimproved Vacant land	51.0	3.2
Total Buffer Coverage	1,590.5	100.0

Based on the digitized data on buildings under the Project, a detailed account of buildings affected in each DSD is presented in **Table 55** below.

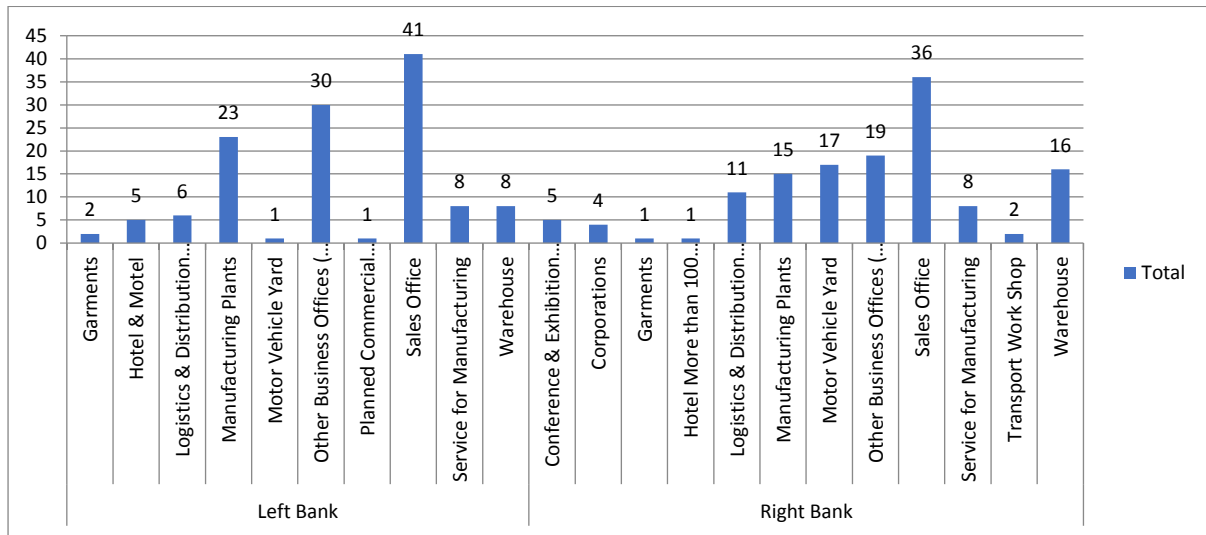
Table 55: Affected type of buildings and number in each DSD

District	DS Division	Building Type																																
		Bank	Bus Depot	Bus Stands	Cemetery	Conference & Exhibition Centres	Construction Site	Corporations	Garments	Hotel & Motel	Hotel More than 100	Housing Scheme More than 100	Individual Private Houses / Dwelling Houses	Kovil	Logistics & Distribution Centre	Low Income Houses	Manufacturing Plants	Motor Vehicle Yard	Other Business Offices (Ex.	Planned Commercial	Plantation / Agriculture	Playground / Park	Police Station	Premise of Special Services	Private Hospital	Sales Office	Service for Manufacturing	Specialize Hospital	Temple	Transport Work Shop	Utility (Electricity / Water /	Warehouse	Grand Total	
Colombo	Colombo										88	77		6	98	23					1				24									317
	Hanwella								3						14					16					4									37
	Homagama											16			11		1	5					1		4	8							2	48
	Kaduwela	4		2					2						7			15	1				1	3		8								170
	Kolonnawa				3					2			224			124			10		7			5		1			1			6		383
Colombo Total		4	2	3				2	5		88	444		6	254	23	1	30	1	23	1	1	9		41	8		1			8	955		
Gampaha	Biyagama				5	3		1		1		191		1	6	1		7		1					3			4	2	5	5	236		
	Dompe											10				2				18													30	
	Kelaniya		2					4				153	1	10	267	12	17	12				4	6	4		33	8		14			5	552	
	Wattala											125			4									26	10			5	40			6	216	
Gampaha Total			2		5	3	4	1		1		479	1	11	277	15	17	19		19	4	6	30	10	36	8	5	58	2	5	16	1034		
Grand Total		4	2	2	3	5	3	4	3	5	1	88	923	1	17	531	38	18	49	1	42	5	7	39	10	77	16	5	59	2	5	24	1989	

(Source: Google earth, Open Street Map)

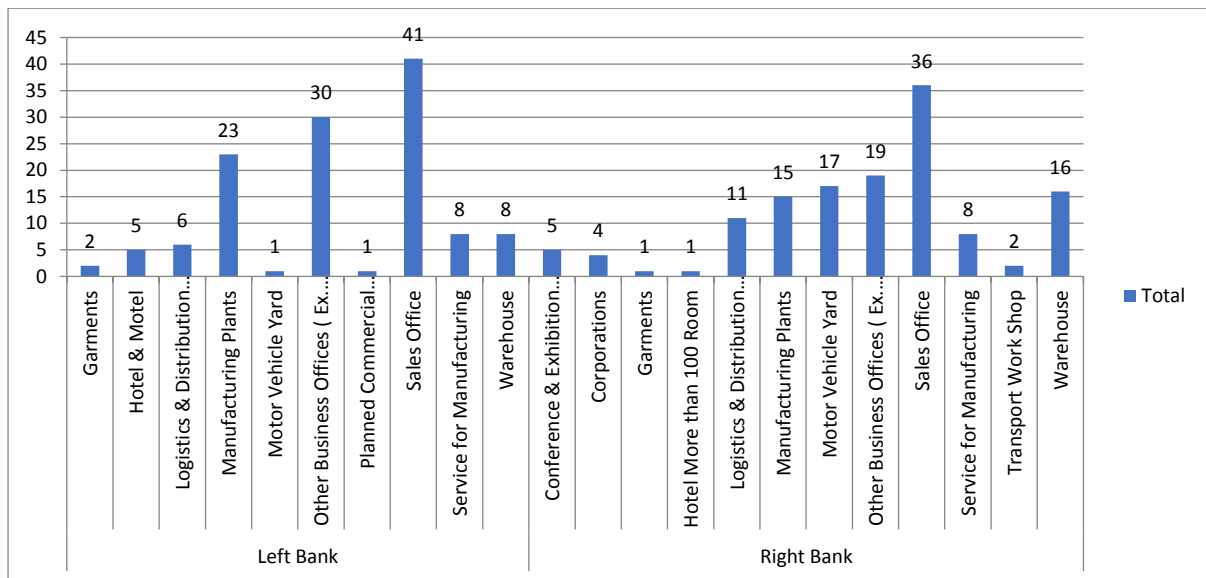
According to the information above, commercial buildings are considered to be the second most common building type. These structures were classified to include warehouses and factories, as well as recreational facilities, such as hotels, motels, and restaurants. All other business uses, such as sales offices, were classified under business.

Figure 59: Estimated commercial properties on the left bank



(Source: Google earth, Open Street Map)

Figure 60: Estimated commercial properties on the right bank



(Source: Google earth, Open Street Map)

Several factories, including garment factories, warehouses, distribution centres, businesses, and sales offices are located along the river banks. The warehouses and factories are mostly large structures with many of them located on the right bank of the river. A few had built walls for protection. The project design should incorporate these structures into the proposed flood protection works.

There were also several hotels of varying sizes. Some with less than 10 rooms and some with under 100 rooms. Most of these structures were located on the right bank of the river overlooking the water. Several hotels are located right on the bank line. These hotels would have to be removed and others would have their view obstructed. The design of most of these building structures and their location makes it difficult to build even the flood walls without significantly impacting the structure itself. Aesthetics, proximity, and access to the river are particularly important factors when considering the type and design of flood protection for these types of buildings.

There are also several religious buildings, mostly temples and kovils, located within the 50 foot project proposal areas. In some cases, these buildings fall within the project foot print area and in other cases only the land adjoining the buildings would be affected. The 50 foot line on the right bank in particular would impact 22 religious buildings and the right bank flexible line without the north bund would affect 11.

3.2.1.2 Ruecastle and Wee Oya reservoirs

The prefeasibility study conducted by Atkins UK Ltd identified two options for these two proposed reservoirs. The estimated area of inundation, impacts on displacement, and buildings for both options is presented in the **Tables 56 and 57**.

Table 56: Proposed reservoirs and displacement of people and impact on buildings

Name	Max Crest Level (masl)	Max Volume (MCM)	Area Inundated (ha.)	Impact on Buildings		People
				Comm.	Res.	
Wee Oya	122	48	162	4	110	550
Ruecastle	110	215	2,681	692	1,910	9,550
Total		263	2,843	696	2,020	10,100

(Source: CRIP-DBIP)

Table 57: Proposed reservoirs (at reduced capacity) and displacement of people and buildings

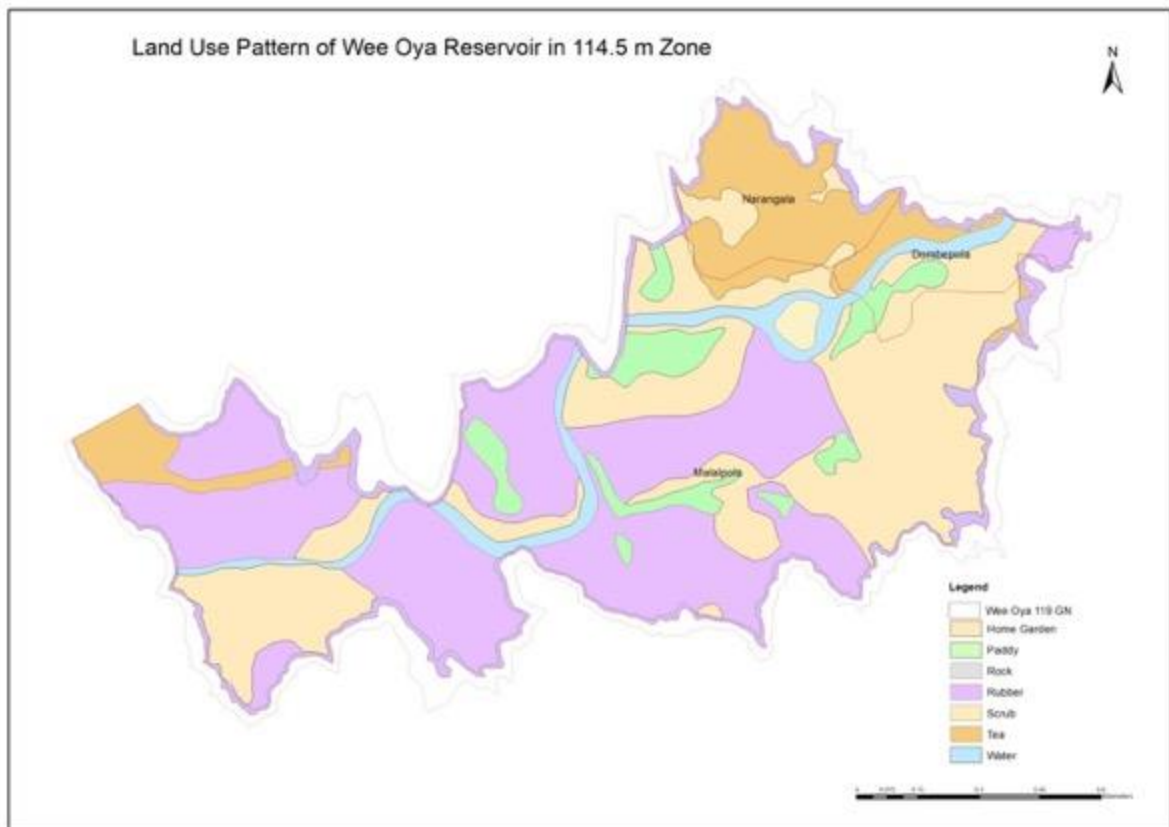
Name	Max Crest Level (masl)	Max Volume (MCM)	Area Inundated (ha)	Impact on Buildings		People
				Comm.	Res.	
Wee Oya 2	110	29	133	4	90	450
Ruecastle 4	150	180	568	80	367	1,835
Total		209	701	84	457	2,285

(Source: CRIP-DBIP)

Implementing the first option, with maximum volumes of 48 MCM for Wee Oya and 215 MCM for Ruecastle Oya, will have an estimated population around 10,000 to be displaced. If the capacity is reduced, the estimated displaced population is about 2,300. As the reduction in capacity will reduce the numbers of persons displaced, this in turn will reduce the impacts of the displacement. However, the option of reducing the capacity should be further studied comparing the benefits of water storage and diversions, especially for the Wee Oya reservoir (diversions to Attanagalu Oya and Kelani basin).

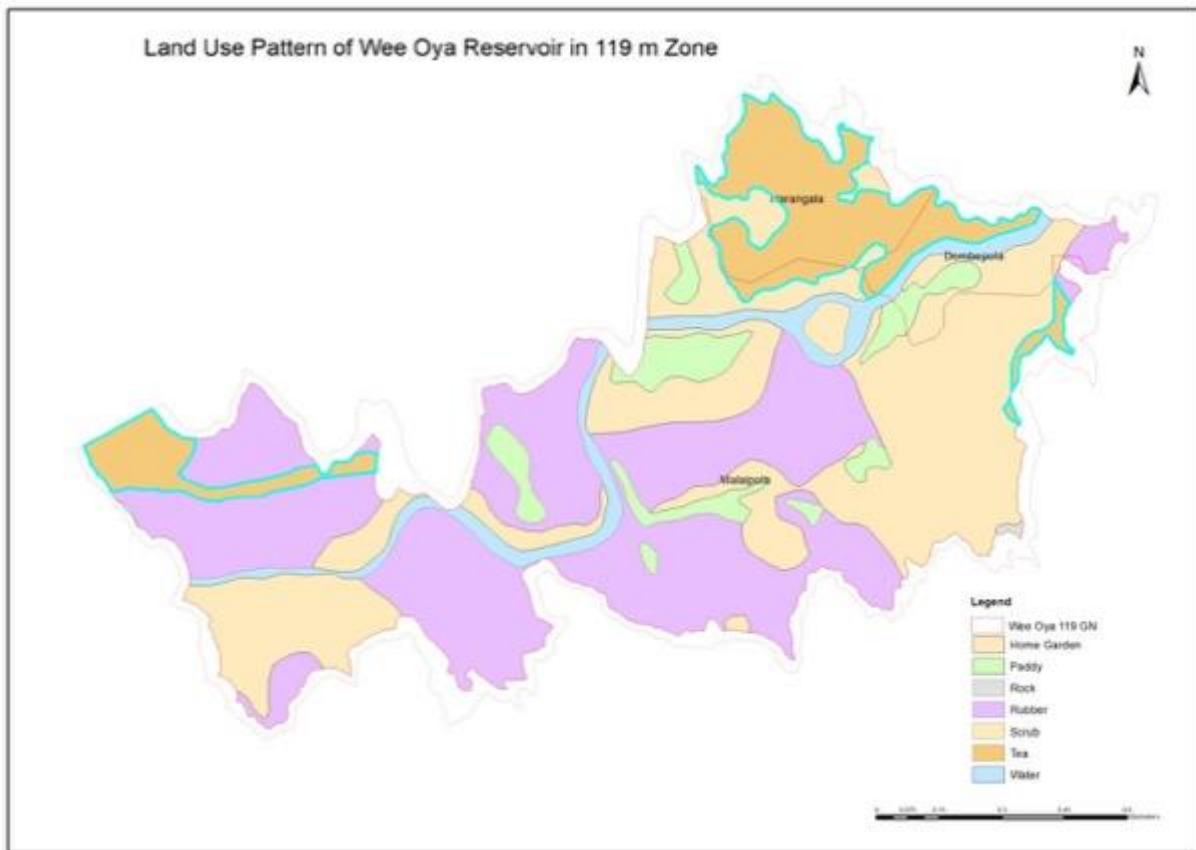
Figures 61-63 present the existing land use maps under inundation zones at 114.5 m, 119 m, and 131 m MSL for the Wee Oya reservoir.

Figure 61: Land use map of Wee Oya reservoir in 114.5 m zone



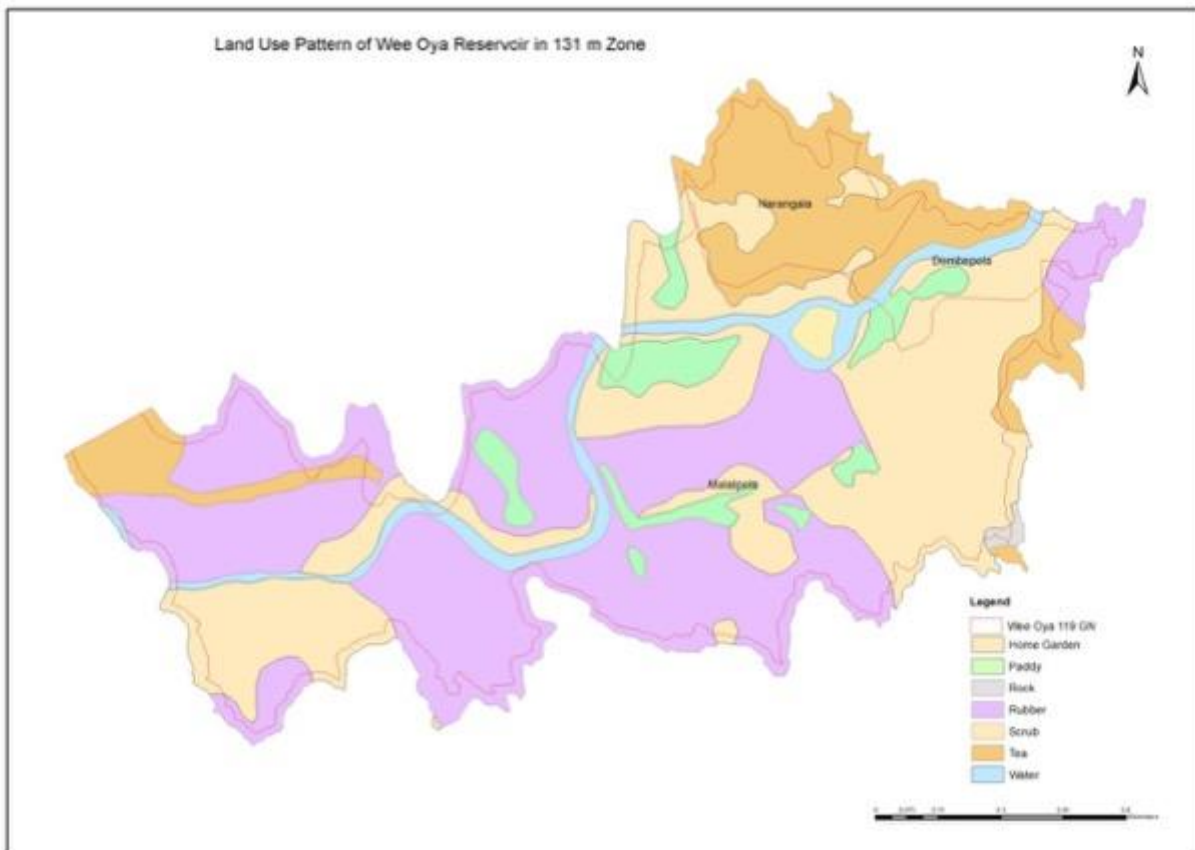
(Source: Survey Department)

Figure 62: Land use map of Wee Oya reservoir in 119 m zone



(Source: Survey Department)

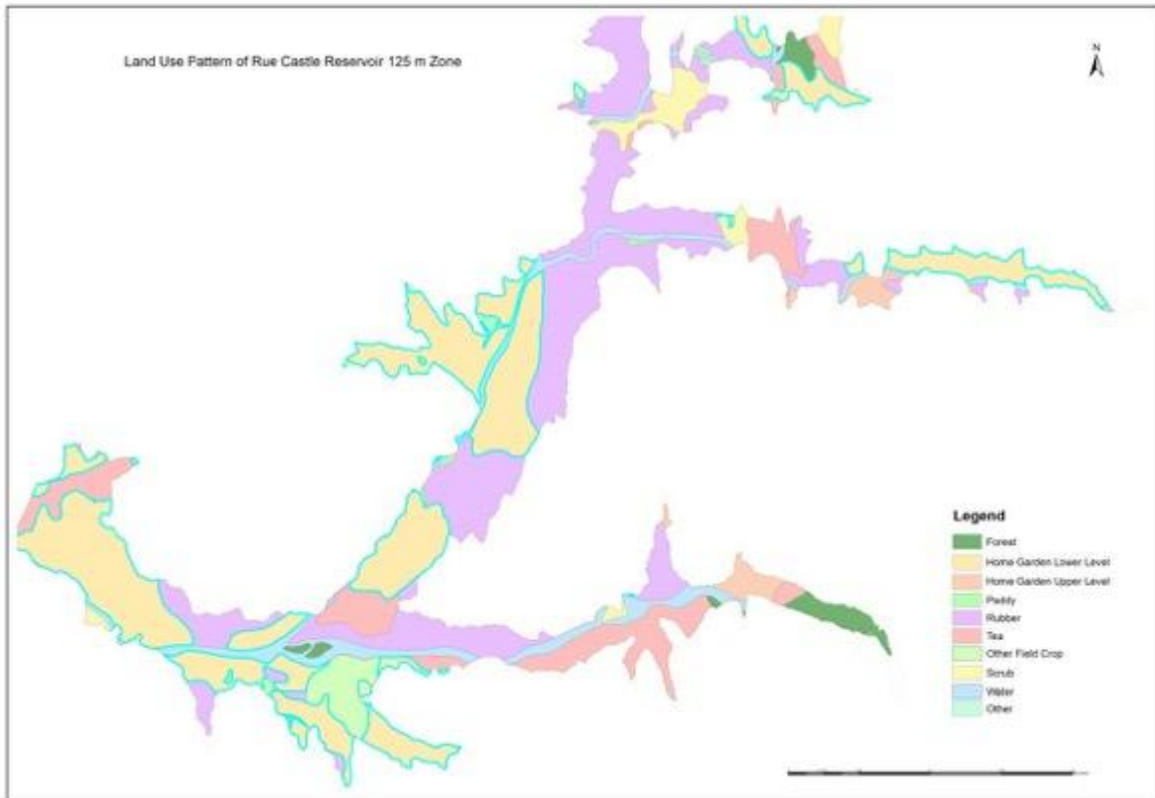
Figure 63: Land use map of Wee Oya reservoir in 131 m zone



(Source: Survey Department)

Figures 64-65 present the impacted land use at inundation levels at 125 m and 132.5 m MSL with respect to the Ruecastle reservoir.

Figure 64: Land use map of Ruecastle reservoir in 125 m zone



(Source: Survey Department)

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Table 58: Types of roads on the river bank to be affected

Bank	Area	Road Name	Class	Length(m)
Left Bank	Kaduwela to Hanwella	Colombo Hanwella Low level Road	Other	650.48
		Unknown	Other	1811.08
	Kaduwela to Sea	Ambatale Road	Other	188.23
		Fergusons Road	Other	69.41
		Fergusons Road(Nagalagam Veediya)	Other	414.54
		Negombo Colombo Road	A	31.14
		New Kaduwela Biyagama Crossing	Other	31.18
		New Kandy Road avissawella Road)	B	15.15
		New Kelani Bridge	A	30.03
		Outer Circular Highway E2	E	31.64
		Senevirathnarama Road	Other	12.90
		St.Mary's Lane	Other	7.61
	Unknown	Other	386.19	
Right Bank	Kaduwela to Hanwella	Hanwella Malwana Road	Other	558.70
		Hanwella Malwana Dekatana Road	Other	120.46
		Unknown	Other	1230.52
	Kaduwela to Sea	Mattakkuliya Bridge	Other	13.14
		Negombo Colombo Road	A	30.19
		New Kaduwela Biyagama Crossing	Other	32.56
		New Kandy Road	B	16.49
		New Kelani Bridge	A	23.36
		New Kelani Bridge Road	A	8.29
Old Kandy Road	Other	159.31		

Bank	Area	Road Name	Class	Length(m)
		Outer Circular Highway E2	E	33.20
		Preethipura Road	Other	7.94
		Senevirathnarama Road	Other	15.00
		Unknown	Other	1037.09

(Source: Google earth, Open Street Map)

A variation between the left and the right bank can be seen. Larger national roads and roads connecting urban centres are found on the left bank, which is closer to Colombo, and the more provincial roads affected are located on the right bank, which is more sub-urban.

Further, there are several bridges that would need to be considered into the design on the flood protection works. In particular the bridge structure should not be impacted during construction. The number of bridges located between Hanwella and the river mouth are listed below.

Table 59: Types of bridges on the river bank to be affected

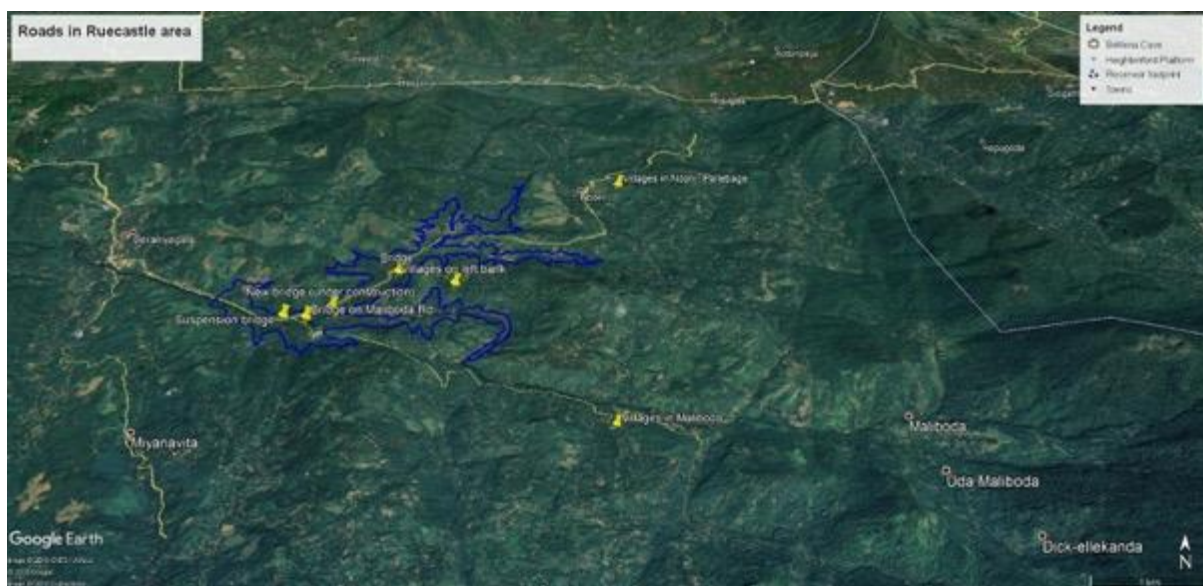
Name	Class	Road Type	Max. speed	Bank	Length(m)
Mattakkuliya Bridge		Secondary	50	Both	175.82
Negombo-Colombo Road	A3	Trunk	60	Both	225.40
New Kelani Bridge		Trunk	60	Both	268.23
Senevirathnarama Road		Tertiary	40	Both	141.10
New Kandy Road	B263	Primary	60	Both	102.42
Unknown		Residential	30	Both	121.39
New Kaduwela Biyagama Crossing		Primary link	0	Both	244.35
Outer Circular Highway E2	E2	Expressway	100	Both	1068.63
Unknown		Path	0	Both	126.25
Unknown		Footway	0	Both	237.73
Unknown		Residential	30	Both	22.33

(Source: Google earth, Open Street Map)

3.2.2.2 Ruecastle and Wee Oya reservoirs

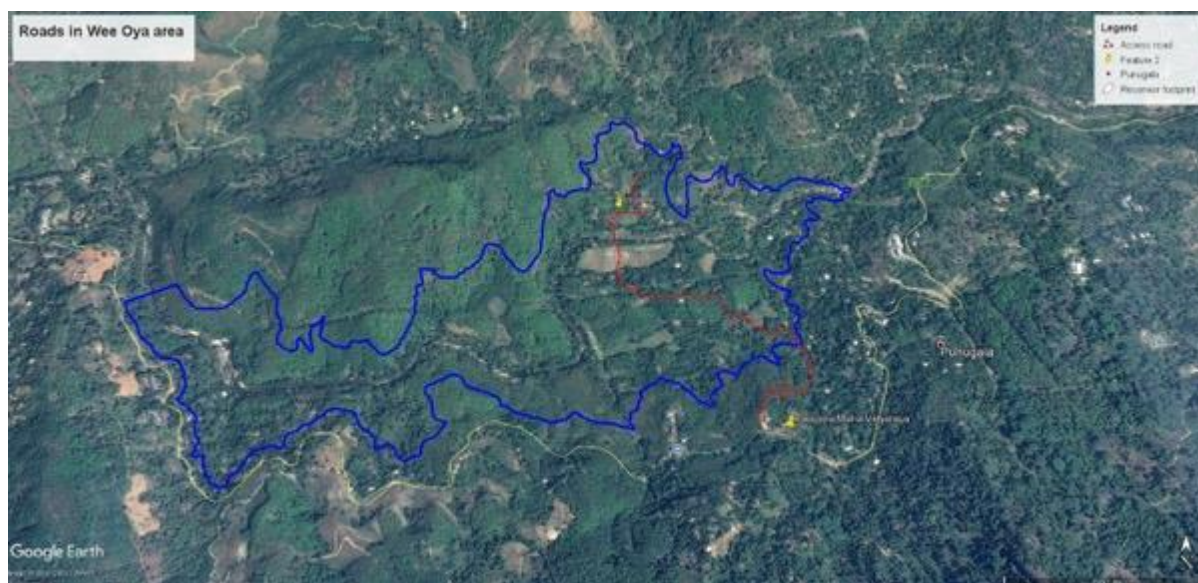
The proposed land area for the Ruecastle reservoir will permanently submerge a section of the Deraniyagala – Noori (B93) road, which is about 5 km in length. Along with this road section, four bridges across the Magal Oya and Seethawaka Oya will also be permanently submerged. About 1 km of the Maliboda road will also be permanently submerged due to the reservoir. The immediate impact of this submergence is the cut-off of the villages towards Noori, Pallegage, and Maliboda, and on the left bank of the Magal Oya from the main city of Deraniyagala. This situation is presented in the following **Figure 66**.

Figure 66: Road sections inundated and affected villages



Compared to the Ruecastle reservoir area, there are no major road issues in the Wee Oya reservoir area. The reservoir will only border the Yatiyanthota – Meenagala (B482) road and the access road towards the village in the valley (near Malapola Maha Vidyalaya) will be of no use as these villages will be permanently inundated by the reservoir. **Figure 67** presents the roads around Wee Oya reservoir.

Figure 67: Roads around Wee Oya



3.2.3 Sensitive Structures Affected Due to the Proposed Interventions

3.2.3.1 Flood embankment

There are several hotels that use the river. No mini-hydro power plants are located in this downstream reach of the river. However, there are two intakes of water treatment plants of the NWS&DB (at Ambathale and Biyagama). The Irrigation Department maintains river flood gauging stations located at Hanwella, Ambathale, and Nagalagam Street. **Table 60** presents the other sensitive structures observed along the proposed flood embankment stretch, which includes places of worship and cemeteries.

Table 60: Sensitive structures/places affected due to embankments

Name	River Bank	Area	District	DS Division	GN Division	GN code
Sri Gangathilaka Purana Viharaya	Right Bank	Kaduwela to Sea	Gampaha	Wattala	Hekitta	169
Sri Sunandarama Viharaya				Biyagama	Bollegala	278A
Samanabedda Cemetery				Dompe	Samanabedda	416
Kelani Nadee Bodirukkaramaya	Left Bank		Colombo	Kaduwela	Ranala	469

Name	River Bank	Area	District	DS Division	GN Division	GN code
Sati Pansala Kaduwela		Kaduwela to Hanwella			Wekewatta	471A
Public Cemetery		Kaduwela to Sea		Kolonnawa	Maha Buthgamuwa B	506C
Buddhist Temple					Wennawatta	507
Sri Bodhirajaramaya Temple				Colombo	Mahawatta	C20
Kelani Nadee Viharaya					Madampitiya	C19
Gethsamane Gospel Church					Mattakkuliya	C26

(Source: Google earth, Open Street Map)

3.2.3.2 Ruecastle and Wee Oya reservoirs

The proposed inundation area for the Ruecastle reservoir will submerge the Anhittigama Maha Vidyalaya (school), Anhittigama sub-post office, and Sri Jinendarama Purana Viharaya (temple). The mini-hydro power plant just below the suspension bridge at Seethawaka Oya will also be permanently affected.

Other than the 6 MW Wee Oya hydro electricity power plant, owned by Powerbase Technology (Pvt) which would be inundated, there are no sites or structures affected in the inundation area for Wee Oya reservoir.

3.2.4 Impacts on Local Uses and Users of the Kelani River

3.2.4.1 Flood embankment

Those who live closer to or on the river bank use the river for several purposes, including fishing, bathing, relaxation, washing clothes, transport, and washing vehicles. Bank areas close to the sea are also used as docking points for fishing boats and small yachts. A flood bund along the river banks will hinder the people of the above uses. The loss of access to the river will also affect kovils and temples, as there are certain rituals that are carried out in association with the river water.

Figure 68: Fishing boats along the river bank near the river mouth, public bathing place at Malwana



Figure 69: Kovil at Peliyagoda (right bank) with access to the river



A 35 year old resident of Lansiyawatta, Wattala stated that the proposed interventions along the river bank should consider keeping pier points for anchoring their fishing boats. Three women from Biyagama Road and Ferguson Road explained the necessity of keeping safe access to the river as they still use river water for washing and bathing needs. A man from Malwana requested that any flood embankment along the river banks should not damage the existing visual beauty at certain locations of the river (especially beyond the Hanwella bridge).

3.2.4.2 Ruecastle and Wee Oya reservoirs

As an entire area will be inundated due to the proposed reservoirs, income generating activities of the people from sand mining and from agricultural and plantation activities will be permanently affected, leading to income loss and subsequent potential impoverishment. The interventions of the two reservoirs should take in to account the impacts of loss of income and impoverishment and develop programmes for livelihood restoration and assist the displaced to find new avenues of income and employment.

3.2.5 Impacts During Construction

3.2.5.1 Flood embankment

The loss of access to river water and other river usages will be an important consideration, especially to the public who are living close to the river banks. However, the impact of this issue, especially for drinking water purposes, is not likely to be significant, as most households have permanent water supplies through pipelines of the NWS&DB. Aside from the direct impacts on places of religious and cultural importance, special consideration also needs to be given to places of worship located adjacent to the river and assist any rituals that are being carried out by such places during construction period.

Material for the earth embankment will need to be borrowed from locations outside the project area. Such borrow pits, if left unattended, will cause permanent effects on the visual environment and depletion of a natural resource in all such material extraction sites. The unmanaged extraction of soil is also likely to lead to the creation of pits which could become breeding places for mosquitoes or even become traps for animals and humans. Likewise, unstable cut slopes of borrow sites may collapse causing damage to nearby lands and properties.

Material transportation for embankment (soil) work could cause hindrance to normal traffic flows on the roads in which such material is transported. Mud and dust is likely to be generated, which will be a nuisance to the public and other road users, especially with soil from the vehicles falling out on the roads.

Piling works and earth compaction works will generate noise and vibrations, which will likely be a nuisance to communities living close to such construction sites. Depending on the structural stability of the houses and other buildings near such construction sites, the possibility of structural damages due to vibrations will be of significant importance. The damage or collapse of a structure may cause injuries to occupants or even fatal accidents.

The possibility of conflicts between communities living close to construction sites and the worker force could also be a common social issue that needs to be considered as significant. Such labour conflicts could also arise at locations where labour camps are to be constructed. These issues will be more serious if foreign labour is brought for construction work.

3.2.5.2 Ruecastle and Wee Oya reservoirs

The impacts discussed above on material extraction, transportation, and earth works will also apply (including issues of labour) for the two reservoirs.

3.3 Impacts of Other Major Infrastructure Development Projects

As stated in Chapter 2, there are several proposed and ongoing infrastructure development projects that are being implemented in the project area. Most are located along the proposed flood defence sections from Hanwella to the river mouth. Other than the new bridge which is being constructed across the Magal Oya, there are no other major infrastructure development programmes planned in Ruecastle and Wee Oya area for the two proposed reservoirs. This section discusses the possible

influences that these projects are likely to have on the proposed intervention along the Kelani river and on the community.

3.3.1 Proposed Rehabilitation and Widening of Ambathale – Hanwella Section of AB010 Road

A few sections of the AB010 road between Ambatale and Hanwella are located very close to the existing river bank. Most of these sections have been prone to river bank erosion and are in need for permanent measures to avoid any further erosion. Minor ongoing rehabilitation works include measures, such as placing gabion structures or retaining walls along the road. The proposed flood defence system under the CRes MPA will also have protection works especially within river embankment sections prone to erosion. Any difference in the design criteria used by the RDA and CRes MPA for such protection works and structures will mean a waste of resources for both projects. Therefore, it would be important for the PMU of the CRes MPA to continue dialogue and sharing of information with the RDA in designing such sections to suite the requirements of both the CRes MPA and the RDA.

Further, the RDA's 10-year plan envisages upgrading the Ambatale-Hanwella road to four lanes. This means that the road alignment could potentially interfere with the embankment alignment for the flood defence system under the CRes MPA. This will require close co-ordination with the RDA, including on land acquisition needed to widen the sections of road that will be affected by the CRes MPA. Both the RDA and CRes MPA should also agree on the terms of compensation for all affected persons. If one compensation package differs from the other, the public may not agree with the package which is less in payment and ultimately be against the project with less compensation benefits.

Most likely, the extension of the AB 10 will also require private land acquisition. Thus, it is important that the RDA and the PMU for the CRes MPA agrees on a common boundary of acquisition so as to avoid acquisition of private land at two different times, which will cause unnecessary inconveniences to the public. The public and road users will also face difficulties and nuisances during road rehabilitation works and flood embankment works, especially due to the movement of construction vehicles and the closure of road sections and diversions. This again highlights the importance of close co-ordination between the project and the RDA.

3.3.2 Construction of New Water Supply Lines

Introducing four new water supply lines, as currently planned by the NWS&DB, will increase the capacity of water supply in to Metro Colombo area and will increase the number of households supplied with a permanent clean drinking water source. However, these new lines will mostly be constructed along the existing land corridor along the river bank. If support structures for these pipe lines are to be located near the existing river bank, it will obstruct the proposed flood defence structure works under the CRes MPA. As the pipe laying works have already commenced, it is important that the CRes MPA co-ordinates with the NWS&DB on the designs and agree on a design where structures constructed (and pipe lines established) under the water supply project will not be disturbed under the flood defence works. As stated above, the shifting of existing water supply lines

for the CRes MPA, as well as the RDA project, will also disturb the water supply to Metro Colombo area. Therefore, it is important that the PMU of the CRes MPA co-ordinate with both the NWS&DB and the RDA on the shifting of these water supply lines.

3.3.3 Programmes Under MMDW

The “Urban Regeneration Programme” is considered to provide beneficial impacts to the low-income communities currently living on the river bank without the security of tenure, as they will have access to a healthy environment for human habitation and access to basic infrastructure facilities, such as clean water, electricity, and sanitation. The underserved communities along the river bank within Colombo Municipal Council (CMC) limits impacted by the proposed flood defence interventions are eligible for better living apartments under the “Urban Regeneration Programme”. Therefore, it is important that the PMU for the CRes MPA identifies the families who need to be resettled under the MPA and co-ordinate with the MMDW on their resettlement and payment of compensation. Such an approach needs to avoid any duplication of compensation by both projects to the same affected persons. Further, the PMU for the CRes MPA will also need to co-ordinate with the MMDW to jointly identify other development works which the MMDW plans to carry out in the vacant lands along the river bank that would be affected by interventions under the CRes MPA.

The canal improvement and rehabilitation works under the Metro Colombo Urban Development Project (MCUDP) includes rehabilitation and improvement to the Kolonnawa canal diversion, North lock widening and pumping station, and improvement to Madiwela east diversion. All these canals drain in to Kelani river between Ambatale and the sea mouth. These interventions will reduce the flood incidences in Colombo Metropolitan area (especially within CMC limits). However, to minimise affecting the ongoing rehabilitation and improvement works of these canals, it is important that the PMU for the CRes MPA co-ordinate with the MMDW on the designs at the outfalls of these canals and incorporates them into the flood defence structures.

3.4 Public Perception on the Proposed Interventions

Consultations made with the public in each of the proposed intervention areas is summarized below. Some of the viewpoints made by the public are recommended for consideration during the detail designs of each intervention.

Table 61: Analysis of public perceptions about the proposed interventions

Location of interviews	Personal information			Comment by public	Remarks based on intervention
	Occupation	Sex/age	Address		
<i>Flood embankment (Kaduwela to river mouth)</i>					
Near river mouth	Fish seller	Female/60	Canal Road, Hendala Wattala	Need to put up a protection to the river embankment. need to provide access to the river.	The flood bund/ structure towards the river mouth should also act as embankment protection of the river.

Location of interviews	Personal information			Comment by public	Remarks based on intervention
	Occupation	Sex/age	Address		
Near river mouth	Fisherman	Male/35	Lansiyawatta, Hendala, Wattala	The protection wall on the river embankment is now damaged, which should be developed under this project and it is required to extend this protection work a bit beyond the river mouth, authorities should help to continue our occupation, suggest to keep some access to the river and some pier points for boat anchorage.	The flood bund/ structure towards the river mouth should also act as embankment protection of the river. It is important to provide safe access to the river and provide few pier points towards the river mouth.
	Fisherman	Male/28	Lansiyawatta, Hendala, Wattala		
Residents near Ferguson Rd	Business	Male/63	Ferguson Rd, Mattakkuliya	The project is a timely requirement, but the designs should consider keeping some access to the river as we still use it for bathing and washing (sometimes)	Provision of access to the river should be considered in designs.
	House wife	Female/49	Ferguson Rd, Mattakkuliya		
	House wife	Female/44	Ferguson Rd, Mattakkuliya		
Settlers on the existing north bund from Peliyagoda towards Kaduwela	Garment worker	Female/30	Biyagama Rd, Pattiya	The project is a timely requirement, it should also consider mechanism to protect the river bank from erosion, we would consider resettling in housing schemes provided that there is sufficient floor area (at least 500 sq. ft), suggest to construct a new flood defense, even we are shifted there are people who shall use the river therefore it is important to provide access to the river, the flood defenses should not damage the scenic beauty along the river.	Provisions for river bank protection and access should be considered in designs, If these people are to be resettled in housing schemes developed by UDA they should have sufficient floor area in these housing units.
	House wife	Female/47	Biyagama Rd, Pattiya		
	House wife	Female/69	Biyagama Rd, Pattiya		
	Unknown	Female/67	Biyagama Rd, Pattiya		
	Business	Female/35	Biyagama Rd, Pattiya		
	Business	Male/58	Biyagama Rd, Pattiya		
<i>Kaduwela to Hanwella up to Pugoda</i>					

Location of interviews	Personal information			Comment by public	Remarks based on intervention
	Occupation	Sex/age	Address		
Malwana town area	Business Business And others	Male/46 Male/38	Kandawattha, Malwana	Malwana town area is flooded mainly due to the improper functioning of the existing minor flood structure and the meandering of the tributary flowing in to the river. If the project can increase the capacity of the flood structure and reroute the tributary it shall greatly reduce the flooding in Malwana town. The industrial zone in Malwana discharged a lot of untreated effluent in to this stream which eventually end up in the river polluting it.	All minor flood structures along the river stretch are to be rehabilitated. However, the option of rerouting the confluence of the tributary should also be considered in the designs. If deemed feasible then negotiations should be carried out with the owners of the land required for such action.
<i>Ruecastle reservoir area</i>					
	Shop owner	Male/35	Bategedara, Anhettigama	This river stretch of Magal Oya is flooded due to backwater flow caused by increase in water level in Seethawaka Oya, this phenomenon usually occur once a year. During such period and under extreme events the villages in the right bank of this stream are cutoff. A new bridge is being constructed at much higher level to avoid this issue.	With construction of the reservoir the villages to the right bank shall be permanently cutoff from Deraniyagala. Designing an alternate access should be considered in the designs.
Near a sand quarry on the stream	Shop owner and operator of a sand quarry	Female/69	Bategedara, Anhettigama	The proposed reservoir does not have any direct benefit for us, however we have observed an increase of frequency and magnitude of the floods.	A resettlement plan shall need to be developed which should look in to alternate site for resettlement of displaced, preferably

Location of interviews	Personal information			Comment by public	Remarks based on intervention
	Occupation	Sex/age	Address		
				If we are to be resettled we prefer to have lands close to our villages.	close to their original settlements.
In a sand quarry in the river	Worker in a sand quarry	Male/47	Latha sewana, Anhettigama	Our main income activity is sand mining. However we cannot do this activity during floods in the stream which affects our income. If the reservoir is developed we may need to be resettled and we prefer to stay close to our original settlements. Any assistance on resettlement and providing new avenues for income is also important.	A resettlement plan shall need to be developed which should look in to alternate sites for resettlement of displaced, preferably close to their original settlements. The resettlement plan should also consider income restoration programs.
	Worker in a sand quarry	Male/34	Pahala Punchiwatta, Anhettigama		
	Worker in a sand quarry	Male/41	Pahala Punchiwatta, Anhettigama		
	Disable person	Male/65	Panakura, Anhettigama	Not sure whether the reservoir have any direct benefit to the villagers, however assistance should be provided if there is resettlement, people like us shall need special assistance both physically and economically.	The resettlement plan should consider low income groups and vulnerable families.
Shop on the bridge to Maliboda	Shop owner	Male/43	New bridge, Anhettigama	Nearly 1000 families who live on the right bank of Magal Oya (villages in Maliboda area) shall be cut off from the Deraniyagala. Even if the reservoir is not implemented it is very important to put up an early warning system in this area as there are many flash floods which even affect the hydro-power plant downstream.	With construction of the reservoir the villages to the right bank shall be permanently cutoff from Deraniyagala. Designing an alternate access should be considered in the designs.
	Retired government officer	Male/59	Nakkawita, Deraniyagala		

Location of interviews	Personal information			Comment by public	Remarks based on intervention
	Occupation	Sex/age	Address		
Wee Oya reservoir					
Inundation area	House wife	Female/74	Malalpola, Yatiyanthota	The concept of a reservoir was told to us more than 30 years back. If the reservoir is constructed we would have to shift and we prefer to stay close to our original lands. The government owned lands in this area could be used to resettle us.	A resettlement plan shall need to be developed which should look in to alternate sites for resettlement of displaced, preferably close to their original settlements.
	House wife	Female/46			
	Tea planter	Male/46	Malalpola, Yatiyanthota	We would prefer to be resettled close to our original lands. It is important to assist us with some livelihood improvement programs.	The resettlement plan should also consider income restoration programs.
	Unknown	Male/43	Malalpola, Yatiyanthota	If the water stored in this reservoir is to be used for drinking then the investors have to do a lot of awareness to planters in this area about using agro-chemicals. Right at this moment there is a high use of such chemicals which ultimately end up in the river.	Possible eutrophication of the reservoir due to agro-chemicals discharged to the river needs to be considered with developing awareness programs for the planters in the area to optimize the use of agro-chemicals and to shift to organic farming.

3.5 Beneficial Impacts of the Proposed Interventions

The proposed project interventions are to construct a flood defence system from Hanwella bridge to the river mouth, and another addition stretch from Hanwella bridge towards Pugoda. Two reservoirs will also be considered in the mid-upstream of the Kelani river to further mitigate the flood occurrence downstream. The direct benefits or positive impacts of the interventions under the project, especially, the flood defence system include:

- Reduction of vulnerability of exposed people and assets to floods caused in the lower reaches in Kelani River;
- Reduction of transport interruption risk and damages to roads and other infrastructure facilities and investments due to long term risk mitigation direct capital investment;

- Strengthening of technical capacity of the Ministry of Irrigation and Water Resources Management and other partner agencies;
- Rehabilitation of damaged flood control structures on the tributaries and improving the carrying capacity shall reduce the flood incidents in the flood plains of Kelani river.

The key indirect benefit of the proposed intervention will be the reduction of dislocation and disruption to economic activities and the reduction of any recurrent expenditure for the GoSL in facilitating the basic health and food needs of such displaced people during flood events. These benefits far outweigh the potential adverse impacts of the interventions, as described above. If the flood defence system is not established, the flooding due to flows in Kelani river and its tributaries (especially beyond Hanwella) will continue to affect the lives of people living in that area, and may even be further aggravated considering the climatological shifts observed with respect to the county. However, the existing land use patterns in the areas identified for the Ruecastle and Wee Oya reservoirs will remain the same if these two interventions are also not executed.

4. VULNERABLE GROUPS AND COMMUNITIES

One of the key objectives of the GoSL in planning and executing large-scale public development interventions is to improve the socio-economic conditions of its population. Generally, such development interventions provide benefits to a large group of people/communities. However, invariably, groups/communities are also adversely affected. The majority of such groups/communities, even when adversely affected, are able to cope with the changes and impacts of such development interventions, provided that they receive sufficient assistance and guidance. However, there is another group within affected persons who would not be able to manage the change on their own, thus run the risk of being critically marginalized or impoverished. Such people or groups of people are called “vulnerable” people or groups.

In general, vulnerability is understood as the degree to which a population, individual, or an organization is unable to anticipate, cope with, resist, and recover from the impacts of an event/occurrence. Children, pregnant women, elderly people, malnourished people, and people who are ill or immunocompromised, are particularly vulnerable when a disaster strikes, and take a relatively high share of the social, economic, and health burdens associated with emergencies. Poverty and its common consequences, such as malnutrition, homelessness, poor housing, and destitution are some of the major contributors to vulnerability.

4.1 Criteria for Vulnerability

The “Land Acquisition and Implementation of the National Involuntary Resettlement Plan, a guide for public officers on good practices, 2013” defines vulnerable persons as “Distinct groups of people who by virtue of gender, ethnicity, age, physical or mental disability, economic disadvantage, or social status may suffer disproportionately than others and who may be limited in their ability to claim or take advantage of resettlement benefits and related development benefits”.

As an intervention with national importance, it is important that the CRes MPA first identifies and categorizes the types of vulnerabilities that prevail in the proposed project intervention areas and types of vulnerabilities that would arise due to the proposed interventions. Accordingly, this chapter discusses both— the types of vulnerabilities that currently prevail in the proposed project intervention areas and the vulnerabilities that would arise due to the proposed interventions. The chapter also includes a discussion of how such marginalized/vulnerable communities can be included in all phases of the CRes MPA from the design, implementation, and monitoring of the interventions under the project. As indicated in Chapter 1, information at the DS level, consultations with the public, and field observations were used to categorize the various types of vulnerabilities in the project intervention areas.

4.2 Screening and Assessment of Vulnerability

Families with disabled persons, families living below the poverty line, families headed by women, and elderly are the main vulnerable groups identified in the project area (Chapter 2, Section 2.4). Other than these groups, there are no specific ethnic minority groups or traditionally disadvantaged groups within the proposed project intervention areas that can be considered as being vulnerable.

4.2.1 Disability

The World Health Organization (WHO) defines ‘disability’ as an umbrella term covering impairments, activity limitations, and participation restrictions. An ‘impairment’ is a problem in body function or structure; an ‘activity limitation’ is a difficulty encountered by an individual in executing a task or action; and a ‘participation restriction’ is a problem experienced by an individual in involvement in life situations³⁰. In the context of the proposed CRes MPA, differently-abled persons are likely to be vulnerable due to mobility restrictions arising from construction activities and heavy traffic movements. During the process of relocation and resettlement, people with disabilities are also likely to face hardships, especially when they are required to shift to an unfamiliar location. In such locations, access to places, such as medical treatments centres and educational centres, change and new institutions have to be found at the new location in the event that commuting is difficult.

4.2.2 Poverty

The Household Income and Expenditure Survey (HIES) is the main data source used to calculate poverty indices for Sri Lanka. This survey is conducted by the Department of Census and Statistics once in three years and the latest survey was conducted in 2016. The method used to calculate the official poverty line is called Cost of Basic Need (CBN) method. The Official Poverty Line (OPL) for 2016 is Rs. 4,166 per month for one person.³¹ Development interventions, such as the proposed CRes MPA could affect the livelihood activities of the poor leading to further reduction of their income.

4.2.3 Women and Elderly Headed Households

Households headed by women and elderly are considered as vulnerable to development interventions, such as the proposed project intervention. These families face mobility restrictions and livelihood losses due to large-scale development interventions causing them further hardships.

4.3 Assessment of Impacts on Vulnerable Groups

Discussions with communities and field observations made during the study in the lower reaches of Kelani river where flood embankments are proposed to be constructed revealed that the proposed developmental project could potentially lead to the following types of impacts to these vulnerable groups:

- Differently abled persons will be highly vulnerable during mobility restrictions in project areas due to construction activities and heavy traffic movements;
- Vulnerable groups will face hardships when relocating and resettling at an unfamiliar location where familiar places (such as medical treatments centres and educational centres) are

³⁰ <https://www.who.int/topics/disabilities/en/>

³¹ Poverty indicators, Household income and expenditure survey, 2016 (Department of Census and Statistics)

lacking and new institutions have to be found at the new location in the event that commuting is difficult;

- In general, vulnerable groups are used to particular types of livelihoods for income generation. The changes in locations will prevent them from utilizing the norms and activities related to income generation, and will severely affect their sustenance;
- Both development activities and natural disasters disrupt the schooling of children. Further, if there is relocation, new schools need to be found and children will have to undergo admittance processes and fitting into the new school;
- There will be possibilities of losing current employment in the event the relocation site is too far for commuting, and also in the event the development takes place at the location of the employment/relocation;
- Many people in the reservoir areas are employed in estates, carrying out agriculture activities, and involved in sand mining activities. With the inundation (of project activities) to parts of these estates and sand quarrying locations, these people will lose their income sources. A concern raised by the public was that, an immediate change in their employment cannot be achieved, which puts the people in risk of impoverishment.

4.4 Mitigation Measures and Strategic Level Recommendations

Discussions held with officials and community members during the course of this assessment lead to several suggestions to mitigate the adverse impacts on these vulnerable groups. There are many Non-Government Organizations (NGOs) that cater to such groups and circumstances, including fighting for change of discriminatory legal statuses, initiating awareness programmes, workshops, finding employment, and community-based projects leading to money lending and banking. In general, close co-ordination with such agencies will be essential.

4.4.1 Low Income Groups

The Divineguma programme, implemented by the Department of Divineguma Development, has 10 main development programmes implemented in 25 Districts in the island. The programmes include: the Livelihood Development Programme, the Marketing Promotion Programme, the Social Development Programme, the Community Based Organizations Programme, the Information Technology Programme, the Training and Capacity Development Programme, the Media Programme, the Community Based Banking Programme, the Social Welfare Programme, and the Social Security Programme. These programmes are also relevant to the proposed project. Thus, under the project, efforts should be made to either partner with, or at least co-ordinate with the Department of Samurudhi to maximize benefits to the people living below the poverty line in the project area so that they too are able to access the support provided by the Department.

4.4.2 Compulsory Education

Continued education without interruption for the displaced children population needs to be ensured. The GoSL has created a policy for all children to have compulsory education up to Year 13 and be continued without any hardships. During the selection of resettlement sites, one of the considerations should be whether or not there are schools in close proximity to the relocated sites. Currently there is a population with “no schooling” at 2.9% in the basin area, including adults. This figure should ideally become zero in the future, with measures to ensure that there are no children that do not have access to schooling.

4.4.3 Unemployment

There will be possibilities of affected persons losing their employment due to relocations. These situations should be carefully handled by providing suitable changes in livelihood, skills development, and vocational training to undertake self-employment, if relevant. Further, measures to reduce unemployment by giving priority for the affected persons for any jobs created under the project, should be emphasized.

4.4.4 Elderly Persons

It is suggested that care centres be established for elders in a place where elders over 60 years could interact with others of similar age groups, to engage in productive activities during the day time and provide a safe space. This will provide the opportunity for the elders to actively engage in project activities, exchange views, undertake self-employment, and also participate in exercising and recreational activities.

In order to expand and make the services of village level committees more meaningful, Elders’ Committees could be set up at the DSD level. There are provisions through the National Secretariat for Elders, which provides an allowance of SLRs. 5000 for each committee. Further, the protection of the rights of elders, as stipulated in the “Maintenance Board”, has been already established and is currently in operation.

The “Maintenance Board” has been established under the Protection of the Rights of Elders Act No. 9 of 2000.³² It currently operates under a Secretary of the Maintenance Board for Elders and is under the purview of the Ministry of Social Empowerment. Elders who have been neglected by their children and do not have sufficient income for their sustenance can apply to the Board claiming maintenance from their children. The parents who are over the age of 60 years are considered as “elders” for the purpose of claiming maintenance. Notwithstanding this requirement, even parents who are under 60 years of age also could send their applications to the Board if they are unable to earn sufficient income for their maintenance as a result of some physical or mental disability. The applications need to be

³² Parliament of the Democratic Socialist Republic of Sri Lanka (2000). Protection of the Rights of Elders Act, No.9 of 2000. Available at: http://socialemwelfare.gov.lk/web/images/content_image/pdf/legislation/profeld.pdf

submitted under section 25 of the Act and thereafter the Board will conduct investigations and decide on the payment of maintenance.

Additionally, the opportunities for introducing a well-trained Home Care Service at low cost, by partnering with other governmental and NGOs, should also be explored.

4.4.5 HIV and Other Diseases

Awareness and education programmes on HIV and other communicable and non-communicable diseases are currently not considered as being adequate enough to reach the population. The project could implement awareness raising activities and other relevant services, especially to reduce the risks arising from the labour influx into the project areas.

4.4.6 Disabled Persons

As per the Disabilities Act No. 28 of 1996, every developmental activity should abide by and provide assistance to persons with disabilities for the construction of a house, access facilities to their residencies, and other assistance, as and when required. It is essential that provisions under the law are followed while developing resettlement sites, designing the interventions under the project, and minimizing inconveniences to the disabled during the construction and project implementation phases. Likewise, to ensure that the views of the disabled persons are taken into consideration, the project should also ensure adequate consultation with them and/or their representatives.

5. GENDER ANALYSIS

5.1 Key Gender Issues in the Context of CRes MPA

Chapter 2.4 addresses the status of women in the area where the CRes MPA will be implemented. This chapter discusses the key issues relating to gender within the context of the proposed project interventions and activities under the CRes MPA.

5.1.1 Natural Disasters

Natural disasters have a strong gender dimension, and in general, women are affected more severely than men. Oftentimes, this is due to the fact that women's familial responsibilities expand before and also during such events. However, their access to support and resources are limited. For instance, during the time of the tsunami in 2004, the majority of the dead and missing in Sri Lanka were women; men found it easier to survive because skills, such as swimming and climbing trees, are often taught to boys. Despite this disadvantage, the participation of women in the pre-disaster and post-disaster decision-making processes is very low. For example, the National Council for Disaster Management (NCDM) in Sri Lanka is represented by several ministries and provincial authorities but there is no representation from the Ministry of Women's and Child's Affairs. Further, women are not engaged/informed adequately in issues relating to the delivery of early warnings and preparedness for response. As a result, even during post-disaster support, the privacy for women and girls in living spaces and segregated sanitation facilities (including menstrual hygiene management) continues to be a major concern in temporary welfare centres. Similarly, expecting and lactating mothers face difficulties in meeting their specific requirements in these centres.³³ As a result of these specific experiences and concerns of women, addressing gender issues in disaster risk reduction interventions is considered essential.

5.1.2 Water Uses by Women

Water is essential to life; yet, the usage, as well as rights over water, varies significantly, including in terms of gender. In general, there is a clear difference in the usage of the river between men and women—while the women commonly use the river for bathing, washing, cooking, and other household chores, activities, such as sand mining from the river, are carried out by men. In areas along the basin, where pipe-born water is not available, women often assume the role of supplying water for their family. While most men and women living in the households along the riverbank use the river for bathing purposes, the two do not usually use common points for bathing and washing needs. If they do, they make sure that there are specific times for each gender to use the common bathing points. Further, most of these bathing places do not have proper facilities, such as shelter and cover for changing clothes, or for safe-keeping of their belongings. Accessing such points during evenings and night time is not possible as there is no proper lighting and it is considered unsafe for women to

³³ Institute for Policy Studies (IPS). *State of the Economy 2018, Sri Lanka: Climate Change, Food Security and Disaster Risk Management*, 2018; De Silva, Kushani and Jayathilaka, Ramanie. 'Gender in the context of Disaster Risk Reduction; A Case Study of a Flood Risk Reduction Project in the Gampaha District in Sri Lanka,' *Procedia Economics and Finance*, Vol. 18, 2014; Sepali Kottegoda, 'In the Aftermath of the Gender Identities in Sri Lanka,' *Women in Action*, No.2 2007.

go to such sites at night time. This issue is common for sections of the river bank as well as areas of the reservoirs. Due to this multiple usage of water, any water shortages arising from deforestation and major land use changes could impact women adversely. At the same time however, like in many other cases, the involvement of women in environmental management, conservation, and disaster management interventions are limited.

Figure 70: Women bathing in Kelani river



5.1.3 Women's Needs and Aspirations

As discussed in Chapter 2.3, there are differences between men and women in terms of access to health and educational facilities. Health and education for women are key considerations in the proposed development interventions. Nevertheless, uneven development has hindered the eradication of socio-economic and regional disparities in education. Poverty has barred vulnerable groups of children from urban low-income settlements³⁴, rural areas, and the estate sector from enrolling in schools.³⁵ Furthermore, the education system is in dire need of the introduction and promotion of concepts of rights and responsibilities, ethics, social justice, rule of law, gender equality, and social harmony.³⁶

In terms of access to resources, women in Sri Lanka have access to universal, free, state funded health care services, which are provided through a complex network of hospitals consisting of maternity and child health care units.³⁷ The uses of health services by women are high, including antenatal and

³⁴ Settlements such as those close to the river banks between Kaduwela and the mouth of the Kelani river)

³⁵ Ness, D. & Lin C. (2013). *International Education: An Encyclopaedia of Contemporary Issues and Systems*. Routledge, London and New York.

³⁶ Dundar, H. & Akcayir, M. (2012). Tablet vs. Paper: The Effects on Learners' Reading Performance. *International Electronic Journal Elementary Education*, 4(3), 441-450.

³⁷ Ministry of Health, Sri Lanka (2012). *National Policy on Maternal and Child Health*. Available at: file:///C:/Users/default.rajkoba/Downloads/mch_policy_en.pdf

postnatal care. Nearly 95% of child births are institutional births and immunization rates are also above 91% (Central Bank of Sri Lanka, 2012). Sex determination examinations are carried out in private clinics upon payment. However, abortion of female foetuses (feticide) are not usually reported³⁸. In addition, health care services have increased the life expectancy of women to 79 years, which is higher than that of men in Sri Lanka, whose life expectancy is around 72 years (Central Bank of Sri Lanka, 2012).

Table 62 presents the the healthcare facilities available in the DSDs of the impacted area.

Table 62: Availability of health and medical facilities in the impact area

District	No. of hospitals	No. of beds	No. of MOHs	PHIs	Health midwives
Colombo	8	1,336	4	37	175
Gampaha	5	323	4	31	117
Kegalle	6	615	4	15	67
Overall	19	2,274	12	83	359

(Source: Department of Census and Statistics)

There are a number of issues faced by women in terms of health care in the proposed project intervention areas. These include the lack of trained medical staff; shortages of essential drugs; unequal distribution of health care facilities; and inadequate access for elderly women, the disabled and the internally displaced population.³⁹ In addition, mental health services, irrespective of gender, have been given little attention and as a result, institutional facilities for mental health are lacking and health services have failed to reduce the social stigma attached to mental illness. Furthermore, health implications of gender-based violence are yet to receive attention.⁴⁰

5.1.4 Challenges for Women’s Participation in the Proposed Interventions

The lack of education and awareness among the women about the proposed intervention is expected to be the main barrier for women’s participation in designing and implementing the proposed interventions. However, there is clear indication that women are positively responding to any opportunities that would arise for them to take part in the interventions. This was particularly evident with the women consulted in the informal settlers’ areas.

³⁸ World Health Organization, Sri Lanka (2018). Country Profile on Gender-based Violence in Sri Lanka. World Health Organization. Available at: http://www.searo.who.int/srilanka/documents/country_profile_on_gender-based_violence_in_sl.pdf

³⁹ Jayatileke et al. (2015). Prevention of violence against women and girls at the community level. *The Lancet*. Available at: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)61440-4/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)61440-4/fulltext)

⁴⁰ Saraceno et al. (2007). Barriers to improvement of mental health services in low-income and middle-income countries. *The Lancet*. Available at: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(07\)61263-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(07)61263-X/fulltext)

Figure 71: Women participating in community consultations



Currently, the Ministry of Women and Child Affairs, the Ministry of Health, and the Ministry of Economic affairs (especially in the reservoir areas) have very little or no presence in the project area. This impacts on women's empowerment in the project area, and is an issue to be address for women's participation in development activities. The present capacity of the PMU on gender aspects will also be a critical issue if women's empowerment programmes are to be initiated in the form of assistance to the women in the project areas. Consultations carried out with women along the river bank revealed some of the potential difficulties that they face in their day to day life.

5.1.5 Violence Against Women

Many of the slum dwellers, especially along the river banks from Kaduwela up to the mouth of the river, have very little education. Many of the girls enter into marriages at a very early age. Most of these girls are forced into such marriages, and mostly by older men in their family. Therefore, such incidents are often kept secret and not many organizations intervene in such matters. A study by Jayaweera in 2010⁴¹ identified different types of violence experienced by such women, including rape, sexual abuse, sexual harassment, incest, and domestic violence. Among these, incest and domestic violence are still treated as private family issues. Girls, whose mothers who have migrated for foreign employment, are particularly vulnerable to abuse and rape in households in this area. Intimate partner violence in this area is closely linked with alcoholism and conflict between partners on various issues.

The occurrence of violence against women in the upper reaches of the river, and particularly in the reservoir areas is much less, compared to the slum areas along the river banks. However, the issue of intimate partner violence appears to be prevalent in these areas as well, again, mainly due to alcoholism and conflict between partners on various issues.

⁴¹ Jayaweera (2010). Women, Education and Empowerment in Asia. Gender Education, 9(4), pp.411-424.

5.1.6 Poverty and Related Matters

The slum dwellers along the river bank belong to low income categories. In most of the cases both partners, and even the children, have to work to earn their daily needs. Due to low levels of education and due to various addictions (such as alcohol and drugs) these daily earnings are often wasted by the males, leaving the females to enter in to unlawful ventures, such as selling illicit liquor, drugs, and even prostitution. Again, these types of issues are not widespread in the upper reaches of the river and in the reservoir areas.

5.1.7 Economic Activities

During the consultations, slum dwellers commented that the women find it difficult to get decent employment and one reason for this is their low level of education. Some women are even engaged in illegal activities. However, some women have taken up activities, such as sewing cloths; making food items; and selling flowers and other items to pilgrims going to the Kelaniya temple. The frequent floods in the area sometimes affect these economic activities and these women have no access to compensation or other assistance. Another issue faced by these women is the lack any formal training to pursue any economic activities, especially in terms of improving their productivity and finding exposure to more profitable markets.

5.2 Review of Laws and Policies related to Gender

5.2.1 National Policies on Gender Equality

Articles 12(1) and (2) of the Constitution guarantees equality before the law and equal protection before the law, and non-discrimination on the grounds of sex.

5.2.1.1 Women's Charter

The GoSL approved the Women's Charter on 3 March 1993, recognising constitutional rights on gender equality and freedom from discrimination on the grounds of sex as a fundamental right, and providing for its enforcement in the courts. It also provides for affirmative legislative and administrative intervention to eliminate gender inequalities.

The Women's charter, is based on the United Nations Convention on the Elimination of All Forms of Discrimination Against Women (UNCEDAW), was a collaborative effort of state institutions and women's NGOs. Seven areas, specific to women in Sri Lanka have been addressed:

- Civil and political rights;
- Right to education and training;
- Right to economic activity and benefits;
- Right to healthcare and nutrition;
- Rights within the family;
- Right to protection from social discrimination;
- Right to protection from gender-based violence.

The Charter provides for the establishment of the National Committee on Women (NCW) which comprises experts from fourteen sectors and a Chairperson, appointed by the President. The NCW is mandated to monitor and ensure the implementation of the provisions of the Charter. However, surveys conducted by various government institutions and NGOs have indicated that most of these rights are still to be adequately recognized in society.

5.2.1.2 Development Policy Framework

The Development Policy Framework of the Government (2010) presents the overall objectives to develop Sri Lanka as a dynamic economic and knowledge hub, to ensure that the benefits of development reach all, and to lay the foundation for long-term sustainable development. While prioritizing policies and programmes, the document specifies that specific measures need to be taken for the advancement of women, including progressive policies and initiatives that will promote gender equality in access to opportunities, although there is no explicit focus on the rights of women.

5.2.1.3 National Action Plan for the Protection and Promotion of Human Rights

The National Action Plan for the Protection and Promotion of Human Rights 2011–2016 has a section on the rights of women as the government’s “commitment to ensuring gender equality.” These rights are expected to ensure (i) economic empowerment; (ii) the protection of women against violence; and (iii) the elimination of discriminatory laws, policies, and practices.

5.2.1.4 Other measures relating to gender

As of 2018, amendments to local government elections laws requires 25% representation by women in local government.

Since 2015, pregnant women have been provided with a nutritional bag for 10 months commencing from the fourth month of conception to the fourth month after child birth. The aim of the initiative is to improve nutrition, which in turn has an impact on the life expectancy and well-being of the infant.

The monthly allowance of Rs 2,000 given to poor citizens above 70 years is intended to benefit the elderly women too.

Despite these policies, regulations, and action plans, a significant gap at the macro level is the absence of the National Plan of Action for Women, which was drafted in 1996 and amended periodically until 2013. Regardless, all development projects are encouraged to promote equal access to benefits as well as women’s participation in all activities.

5.2.2 Gender Related Provisions in Disaster Management Policies

Recently, the GoSL introduced several disaster related policies and plans with a gender focus. The extent to which these plans and policies are implemented effectively is unclear. However, these plans and policies provide an entry point for addressing gender issues in disaster risk management projects. Some of the key ones are addressed below.

5.2.2.1 Sri Lanka National Policy on Disaster Management 2010

The objectives of the policy are:

- a. The protection of life of the community, property, and environment from disasters and the development and maintenance of disaster resilient infrastructure and economic development activities in disaster prone areas;
- b. The effective use of resources for preparedness, prevention, response, relief, reconstruction, and rehabilitation;
- c. The enhancement of public awareness and training to help people to protect themselves from disasters,
- d. Capacity building, among persons living in areas vulnerable to disaster, in relation to risk management and the application of disaster management and mitigation practices; and
- e. Pre-disaster planning, preparedness, and mitigation while sustaining and further improving post-disaster relief, recovery, and rehabilitation capabilities.

From a gender perspective, the policy emphasizes equality, diversity, and inclusion in disaster management. The policy specifically states that disaster management should ensure gender equality, particularly the empowerment of girls and women.

5.2.2.2 Sri Lanka Comprehensive Disaster Management Programme 2014-2018

The goal of the Sri Lanka Comprehensive Disaster Management Programme is to ensure safety in Sri Lanka by reducing the direct and associated potential risk of the country to disasters and for minimising impacts on people, properties, and the economy. Its overarching objective is to create and facilitate an enabling environment for multi-hazard, participatory, and partnership-oriented disaster management programmes which use risk knowledge as the base, in line with global conventions and frameworks. The programme considers an 'enabling environment for gender mainstreaming as a cross-cutting area.' The premise of the programme is that there are differences among men, women, and children in matters relating to disaster risks and vulnerabilities. Accordingly, the programme provides an avenue for both government and non-government agencies to come together on a single platform to mainstream gender issues, collect the requisite data, monitor the effectiveness of the programme, and take corrective action, if and when required.

5.2.2.3 National Adaptation Plan for Climate Change Impact in Sri Lanka 2016-2025

The National Adaptation Plan for Climate Change Impacts in Sri Lanka (NAP) was prepared in line with the broad set of guidelines set forth by the UNFCCC for the development of national adaptation plans. The NAP covers adaptation needs at two levels: (1) adaptation needs of key vulnerable sectors and (2) cross-cutting national needs of adaptation. Nine vulnerable sectors were identified in the consultative process: food security, water, coastal sector, health, human settlements, bio-diversity, tourism and recreation, export development, and industry energy transportation. Broader stakeholder consultation adopted in the preparation of the NAP has helped to identify adaptation needs of each

vulnerable sector based on logical criteria involving projections, vulnerabilities, impacts, and socio-economic outcomes.

The NAP identifies adaptation options that can fulfill these needs and actions necessary to achieve these adaptation options with responsible agencies and key performance indicators. Together they constitute the sectoral action plans for each vulnerable sector. The NAP also includes interventions necessary to fulfill cross-cutting national needs of adaptation identified on the basis of analyzing common sectoral needs and opinions of key stakeholders. The plan also proposes an institutional and co-ordination mechanism along with implementation and resource mobilization strategies for the successful implementation of the NAP based on a realistic timeframe. However, the action plan does not include any specific measures or provisions to address gender-related issues in disaster risk management.

5.2.2.4 Nationally Determined Contributions 2016

Sri Lanka's Nationally Determined Contributions (NDCs) consists of NDCs on mitigation, adaptation, loss and damage, and means of implementation. It focuses on 14 sectors and consists of unconditional as well as conditional NDCs. The base line year is set as 2010 as per the Business-As-Usual (BAU) scenario target period of 2021-2030:

- Mitigation - Reducing the Greenhouse Gas (GHG) emissions against the Business-As-Usual (BAU) scenarios in the sectors of energy (electricity generation), transportation, industry, waste, and forestry. The key contributors to GHG are Carbon Dioxide (CO²), Methane (CH₄) and Nitrous Oxide (N₂O);
- Adaptation - Building resilience in most vulnerable communities, sectors, and areas to adverse effects of climate change. Adaptation will focus on human health, food security (agriculture, livestock and fisheries), water and irrigation, coastal and marine, biodiversity, urban infrastructure and human settlement, tourism and recreation. Adaptation initiatives that derive mitigation co-benefits will be given due priority;
- Loss and Damage - In order to address issues related to losses and damages occurred due to extreme weather events, a local mechanism will be developed in accordance with the Warsaw International Mechanism for Loss and Damage;
- Means of Implementation - External support for finance, technology development and transfer, and capacity building for the above sectors are considered in the implementation process of the NDCs of Sri Lanka.

In terms of gender, the NDCs emphasize that it is essential to ensure the participation of women, youth, and other vulnerable groups and to ensure that they are provided with opportunities to engage and benefit from the targets.

5.2.3 World Bank's OP 4.20 on Gender and Development

The objective of the World Bank's Gender and Development policy is to assist member countries to reduce poverty and enhance economic growth, human well-being, and development effectiveness by addressing the gender disparities and inequalities that are barriers to development, and also by assisting member countries in formulating and implementing their gender and development goals. To this end, the World Bank periodically assesses the gender dimensions of development within and across sectors in the countries in which it has an active assistance program. This gender assessment⁴² informs the World Bank's policy dialogue with the member country. The World Bank's Country Partnership Framework (CPF) draws on and discusses the findings of the gender assessment. In sectors and thematic areas where the CPF has identified the need for gender-responsive interventions, the World Bank's assistance to the country incorporates measures designed to address this need. Projects in these sectors and thematic areas are designed to adequately take into account the gender implications of the project. For its part, the World Bank then regularly monitors the implementation of this policy.

5.3 Institutional Capacity

5.3.1 Ministry of Women and Child Affairs

The Ministry of Women and Child Affairs (MWCA) is the main institutional body responsible for the protection of women in Sri Lanka. The MWCA was established by Gazette Extraordinary No. 1933 of 9 September 2015. Among the organizations under its purview are the Sri Lanka Women's Bureau, the National Committee on Women, the Department of Probation and Child Care Services, the National Child Protection Authority, the and Children's Secretariat (Women and Child Affairs Ministry Annual report, 2012).

Despite being established with the aim of creating a Sri Lankan society sensitive to the needs of women, the performance of the ministry was heavily dependent on the quality and rigor of the personnel leading the ministry. With this fluctuation in the performance, the Women's Rights Bill and the National Plan of Action for women are still being processed, despite their dire need. Despite the organisations that are under the ministry (mentioned above), the transferable nature of the administrative service impedes the impact and changes that the organisations can have. Further, the Thirteenth Amendment to the Constitution allocated some of the functions of line ministries to provincial councils, and there is little clarity on responsibilities. This has led to confusion and the duplication of services.

In addition, although the ministry is responsible for policies and programmes for both women and children, very little resources have been allocated for the ministry and this situation is worse when

⁴² Such gender assessments may be stand-alone assessments or may be carried out as part of other Bank economic and sector work, such as poverty assessments (see OP 1.00, Poverty Reduction), country economic memoranda, public expenditure reviews, development policy reviews, poverty and social impact assessments, or institutional analyses. Alternatively, they may be assessments that have been carried out by the country or an organization other than the Bank, if the Bank finds the assessments to be satisfactory.

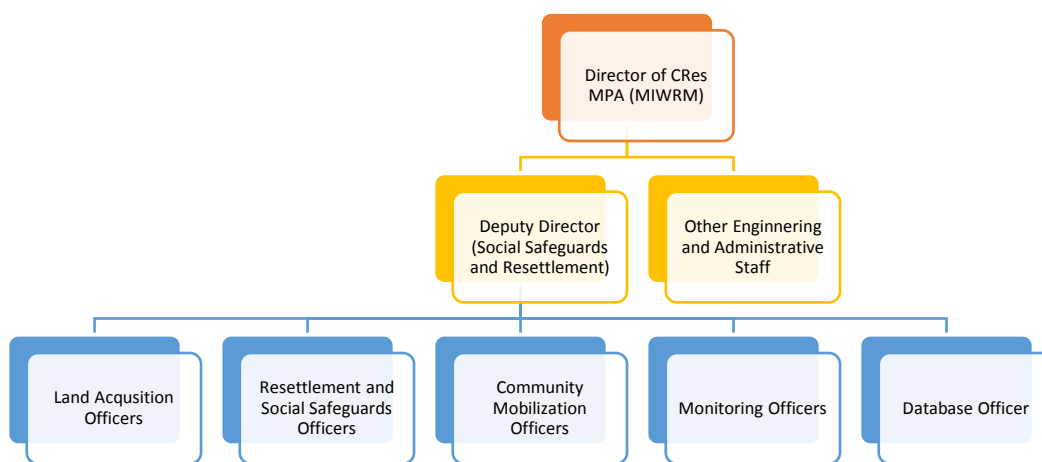
concerning the provincial authorities. All these issues mentioned above have weakened the efforts to address gender issues in the country and the implementation of policies and programmes to safeguard the rights of women.

5.3.2 Ministry of Irrigation and Water Resources and Disaster Management

The PMU, established under the Ministry of Irrigation and Water Resources and Disaster Management (MIWRDM), includes a unit responsible for land acquisition and resettlement activities. The present organizational structure of this unit includes a Deputy Director (DD) for social safeguards and resettlement. A senior land acquisition officer will be appointed under the DD who will be assisted by Land officers. A set of resettlement and social safeguards officers and community mobilization officers are also planned, and these officers will directly report to the DD. The proposed organization structure of this unit is presented in **Figure 72**.

Based on the preliminary assessment of this organizational, structure it is important that the unit is strengthened with staff capable of handling gender issues. In particular, the resettlement and social safeguards officers and the community mobilization officers will need to be trained and made aware regarding the gender related issues.

Figure 72: Organisational structure of the PMU



5.4 Identification of Potential Entry Points and Areas of Intervention

One of the key early entry points where women could bring in positive inputs to the proposed interventions is involving them in Focus Group Discussions (FGDs) at the design stage. This could be easily achieved through calling women for FGDs during the implementation of socio-economic/

resettlement surveys in the intervention areas. Existing Community Based Organizations (CBOs) should also be identified as part of socio-economic/resettlement surveys in the intervention areas. These CBOs could also act as potential entry points for involving women in the project.

This SSA has already opened an avenue for such discussions. However, it is important that such discussions should not be concluded in one session and nor should these women be criticized for some of their present activities. The PMU should obtain assistance from, at least, the Ministry of Women and Child Affairs and the Ministry of Health when conducting these discussions. It is also important that the interviewers listen to the women rather than trying to dictate their own thoughts. Finally, all the information (suggestions and requests) from these women should be analyzed and any suggestions/requests that would help improve the interventions and empower these women should be included in the project designs and other assistance programmes of the project. Such assistance programmes should include vocational training, educational, and awareness programmes on health and hygiene. They should also be provided information on resettling and housing facilities developed under resettlement schemes.

5.5 Recommendations to Mainstream Gender Considerations

Multiple factors can be identified that hinder the participation of women in DRM activities. Cultural norms can be viewed as the main factor that acts as a barrier against women's participation. Due to conditioning by traditional cultural norms, Sri Lankan women are a difficult group to persuade into providing their views.⁴³ Responsible authorities failing to include policies and regulations that promote participation of women is another factor. There is also a lack of attention given to bringing in a gender perspective into development interventions in order to reduce women's vulnerability.⁴⁴ Similarly, the lack of a regulatory frame work that enforces the implementation and monitoring process related to gender, equipped with appropriate regulations and guidelines, expertise, and commitment, is a barrier for women to participate in development projects.

Furthermore, the absence of education and awareness programmes on the significance of women's contribution to DRM, among all stakeholders, including the local community, women, and school children is another issue.⁴⁵ Such awareness and education programmes must be designed and implemented in order to persuade women to participate.

Gender is a key issue in relation to land acquisition and resettlement in view of the differential vulnerabilities of affected men and women. In view of their higher levels of vulnerability, specific measures must be adopted to support women who are affected by the project, especially those women headed families that are mostly and vulnerable.

Specific measures adopted by the project to address gender related issues will include:

⁴³ Fokus Women (2016). 'Reconciling' Sri Lanka: What the WOMEN Say- Thirty Case Studies. Available at: <https://d3jkgmi357tqm.cloudfront.net/1504436930/women-and-reconciliation-english-final.pdf>

⁴⁴ Ibid.

⁴⁵ Ibid.

- a. Provision of title of the alternative housing unit or land plot in the joint name of spouses, if both are willing, and in the name of the mother and the children, in the case of a widow or female head of household;
- b. Special attention to women headed households going through the relocation and post-resettlement process with targeted livelihood assistance;
- c. Providing special assistance to women household heads to appear for investigations under the LAA and in defining entitlements;
- d. Encouraging women's participation in the management of resettlement sites and buildings;
- e. Providing and engaging women in special livelihood and income improvement programmes.

The objective of the gender strategy is to ensure equity in the resettlement process, enabling women and their families to re-establish their shelter and livelihoods in a sustainable manner. Therefore, these measures will be included as specific measures in the RPF for the proposed interventions.

On a positive note there are a couple of NGOs work towards providing relief to women, such as Pulse Sri Lanka, Family Planning Association, Positive Women and Plus Lanka. It is important that the PMU communicates with these agencies and develops specific interventions to assist women affected by the Project.

6. STAKEHOLDER ANALYSIS

6.1 Identification of Stakeholders

The consultation process identified a comprehensive list of stakeholders was compiled (**Table 63**), consisting of those currently involved in different developmental activities to varying degrees and those who are keenly interested in the basin DRM planning. The categorization is:

- First level: National level and local level;
- Second level: Governmental, non-governmental, and private sector;
- Third level: Governing and administrative bodies, developmental and planning bodies, utility services providers, representatives for gender and vulnerable groups, authorities from the agriculture, irrigation, education, and health sectors, civil society, and CBOs.

6.2 Stakeholders in the Kelani Basin Area

The following stakeholders were identified from the consultation process.

Table 63: Overview of stakeholders

1st Level	2nd Level	3rd Level	Agency
Local	Government	Governing/ Administrative body	Provincial Council
Local			Divisional Secretariats (38 DSDs)
National	Government	Irrigation	Irrigation Department
Local			Provincial Irrigation Department
National	Government	Utility	Sri Lanka Telecom
National			Ceylon Electricity Board
National			National Water Supply and Drainage Board
National			Lanka Electrical Company (Pvt) Ltd
National	Government	Development/ Planning	National Census and Statistics Department
National	Government		National Physical Planning Department
National/Local	Government		Archaeology Department
National	Government		Board of Investments
National	Government		Climate Resilience Improvement Project (CRIP)
National	Government		Road Development Authority (RDA)
Local	Government		Provincial Road Development Authority (PRDA)
National	Government		Ceylon Electricity Board

1st Level	2nd Level	3rd Level	Agency
National	Government		City of Colombo Development Plan (2018-2030)
National	Government		Metro Colombo Urban Development Project (MCUDP)
National	Government		Water Supply and Sanitation Improvement Project
National	Government		Strategic Cities Development Project (SCDP)
National	Government		Urban Development Authority (UDA)
National	Government		Land Use Policy Planning Department (LUPPD)
National	Government		Sri Lanka Land Reclamation & Development Corporation (SLLR&DC)
National	Government	Agriculture	Ministry of Plantation Industries
National	Government		Rubber Development Department
National	Government		National Livestock Development Board
National	Government		Ministry of Fisheries and Aquatic Resources Development
National	Government	Gender/ vulnerable groups	Ministry of Women and Child Affairs
Local	Government		Provincial Department of Sociology
National/Local	Government		Department of Samurdhi Development
National	Government		Ministry of Social Empowerment
National	Government		National Secretariat for Persons with Disabilities
National	Government		National Committee on Women
Local	Governmental	Education	Provincial Ministry of Education
Local	Non-governmental	Civil Societies/ CBOs	Abhimani Women's Organization
Local	Non-governmental		Lanka Pulse Health Organizations
Local	Non-governmental		Positive Women's Health Organization
Local	Non-governmental		Youth Sport Clubs (Many)
Local	Non-governmental		Buddhist Youth Clubs (Many)
Local	Non-governmental		Christian Youth Clubs (Many)
Local	Non-governmental		Death Donation Organizations (Many)
Local	Non-governmental		Environmental Protection Organizations
Local	Non-governmental		Kelani River Protection Organization

In view of the stakeholder organizations' involvement in activities in the basin area to varying degrees, all 13 DSDs in the project impacted area and eight national level organizations keenly interested in the

CRes MPA and are currently engaged in the project impacted area were consulted to ascertain the following:

1. The social status of the organizations;
2. The roles and responsibilities of stakeholders towards the CRes MPA;
3. The stakeholder organizations' ability to influence the CRes MPA;
4. The ability of the CRes MPA to influence organizations;
5. The level of knowledge and understanding among the stakeholder organizations about the CRes MPA programme.

The following organizations were consulted. The officials within these organizations that were consulted is presented in **Annex 2** with the other public consultations conducted.

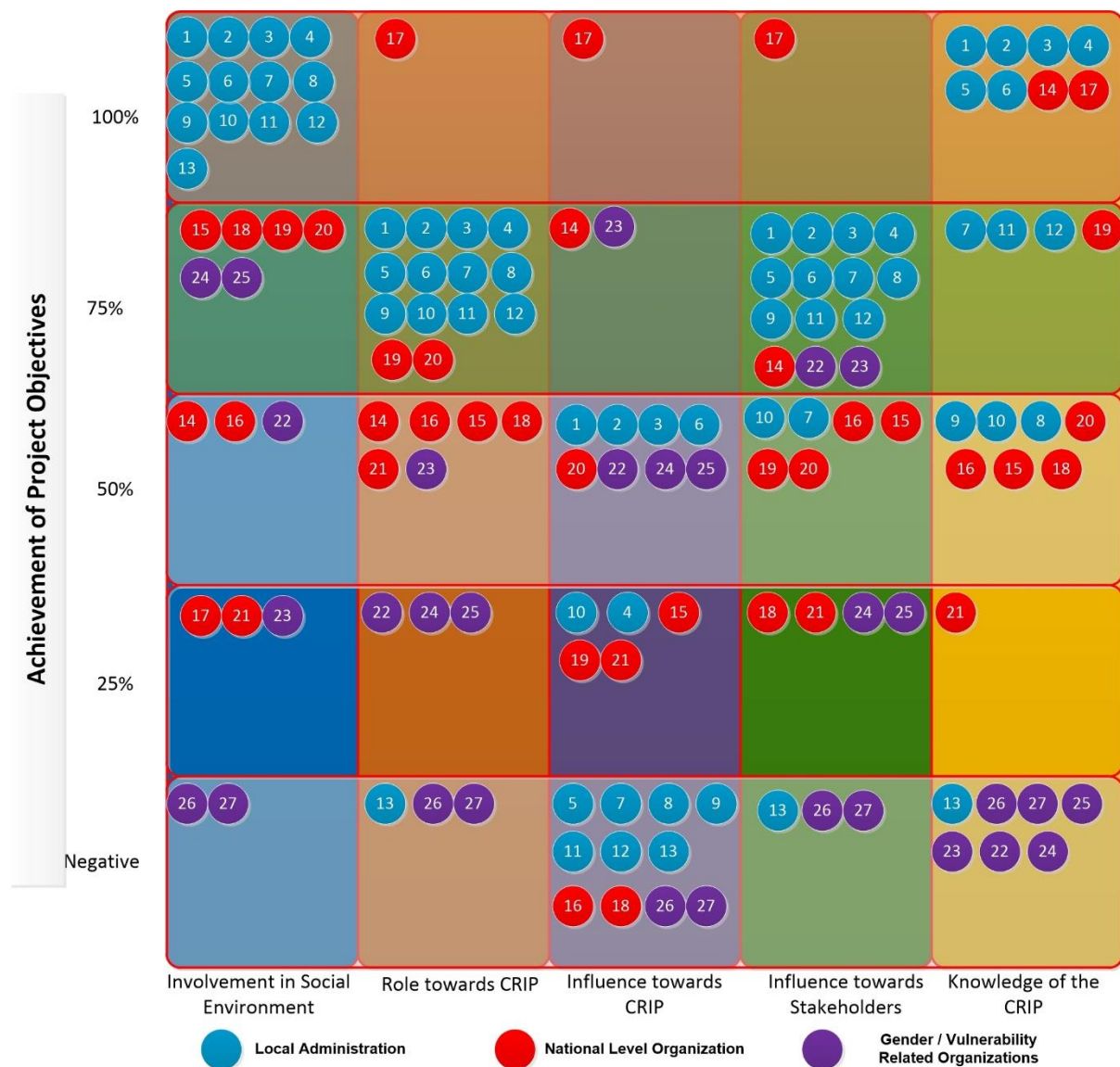
1. Divisional Secretariat – Seethawaka;
2. Divisional Secretariat – Kaduwela;
3. Divisional Secretariat – Kolonnawa;
4. Divisional Secretariat – Homagama;
5. Divisional Secretariat – Colombo;
6. Divisional Secretariat – Biyagama;
7. Divisional Secretariat – Dompe;
8. Divisional Secretariat – Kelaniya;
9. Divisional Secretariat – Wattala;
10. Divisional Secretariat – Bulathkohupitiya;
11. Divisional Secretariat – Deraniyagala;
12. Divisional Secretariat – Yatiyantotata;
13. Divisional Secretariat – Ruwanwella;
14. Sri Lanka Land Reclamation and Development Corporation;
15. National Water Supply and Drainage Board;
16. Ministry of Transport and Civil Aviation;
17. Department of Irrigation;
18. Ceylon Electricity Board;
19. Urban Development Authority;
20. Road Development Authority;
21. Ministry of Provincial Councils and Local Government;
22. Ministry of Women and Child Affairs;
23. Provincial Department of Sociology;
24. Department of Samurdhi Development;
25. Ministry of Social Empowerment;
26. National Secretariat for Persons with Disabilities;
27. National Committee on Women.

6.3 Stakeholder Analysis and Mapping

One-to-one interviews were conducted with the stakeholders to design the “Stakeholder Positioning Map” (**Figure 73**). The institutional information gathered on stakeholders was the criteria for this

analysis. Subsequently, mapping was undertaken, graphically presenting the summary of the status of the stakeholders in relation to the five parameters mentioned above. This was mapped against the potential for achieving the overall objectives of the project at zero level, at 25%, at 50%, at 75%, and at full potential. In the mapping matrix, if the positioning of the organizations are in the upper quadrants, a favourable condition is indicated. If the positioning is towards the bottom quadrants, then a need for improvement in organisational status is indicated in order to orient these stakeholders towards the project objectives.

Figure 73: Stakeholder positioning map



*Legend: Use the number in the Figure against institutions in above paragraph

6.3.1 Stakeholders' Involvement in Providing Social Development Facilities

The Divisional Secretariats represent the central government at the local and regional levels. The DSDs' main function is the implementation of central government policies and programmes at divisional level for its communities. It is indicative that all the DSDs, falling in the top quadrant of the first column, provide social development facilities to its communities in the basin area.

Of the national level organizations, 50% provide about 75% of social development facilities to communities in the area, while the other 50% of national level organizations provide either 50% or 25% of social development facilities to the communities in the area.

For organizations working on behalf of gender and vulnerable groups, 50% provide social development facilities to its communities at the community level while other 50% are unable to provide such facilities at the community level.

6.3.2 Roles of Stakeholders Towards CRes MPA

The DSDs are responsible for implementing central government policies and programmes in their respective areas of administration. These include development programmes, infrastructure projects, livelihood improvement activities, and other social assistance programmes. Since the CRes MPA is governed the central government, the DSDs take on appropriate roles in the implementation of the Project. Almost all the DSDs are fully focused on project interventions, while one DSD expressed a negative opinion about the Project.

All the national level organizations involved in providing public utility and public infrastructure services in the basin area have an important role towards the CRes MPA (50% - 75%).

Organisations representing gender and vulnerable groups are of the view that they have an extremely limited role towards the CRes MPA.

6.3.3 Ability to Influence CRes MPA

The Department of Irrigation has considerable ability to influence/engage in the CRes MPA activities, with a significant level of influence on the interventions.

Of the DSDs, 54% expressed that they are unable to influence the CRes MPA as it is a project undertaken by the central government and, so far, they had not been consulted in designing the project. The balance 46% of DSDs expressed that they have the ability to influence the CRes MPA in regards to land and land resettlement matters. In addition, the SLLRDC has the power to influence the CRes MPA as they are engaged in a sector relevant to the Project.

Among organisations representing gender and vulnerable groups in the basin area, the Ministry of Women and Child Affairs, the Provincial Department of Sociology, the Department of Samurdhi Development, and the Ministry of Social Empowerment are of the view that they can influence the CRes MPA in delivering the social safeguards required by the communities in the project interventions.

6.3.4 Ability of CRes MPA to Influence Stakeholders

The CRes MPA works closely with the Department of Irrigation and the SLLRDC as climate resilience issues are relevant to the sectors that they engage in. Therefore, the Project is able to influence relevant policies and procedures of these institutions. In addition, the Provincial Department of Sociology is of the view that the Project can influence the department in social safeguards issues to obtain redresses.

Almost all the DSDs are of the view that it is a mandatory requirement of the DSDs to look after the welfare of the communities in the project impacted area and, therefore, the Project is able to influence the DSDs on welfare matters of the community.

The Ministry of Women and Child Affairs and the Provincial Department of Sociology are usually present in the basin area to oversee matters pertaining to women and children as well as social safeguards within these communities. Therefore, the Project is able to influence these authorities to obtain required services. The Department of Samurdhi Development and the Ministry of Social Empowerment supervises the welfare of vulnerable communities and, as such, the Project is able to obtain support from these authorities. The National Secretariat for Persons with Disabilities and the National Committee on Women are national level organizations that the Project can influence on national policies for women and the disabled.

6.3.5 Knowledge of CRes MPA

The stakeholders' knowledge on the CRes MPA and Project activities is not at an optimum level. Only 46% of the DSDs have a good understanding about the Project, another 46% do not have a sufficient understanding, and one DSD (8%) has no understanding or knowledge of the Project. Knowledge of the Project at the DSD level is key as it is essential for the local administration of Project. The same situation exists with national level organizations. Apart from that, organizations working on behalf of gender and vulnerable groups have no awareness of the Project or its activities.

6.4 Consultations with Local Administration (Divisional Secretariats)

6.4.1 Participation at Interviews

There are 13 Divisional Secretariats (DSDs) within the area impacted by the project. All these DSDs were interviewed to ascertain the social impacts; suggestions to overcome those impacts; anticipated legal implications; institutional constraints; support that could be extended to the project interventions; and effects on gender norms and ethnic conflicts due to the project interventions. These concerns of the Divisional Secretaries were separately identified for the CRes MPA interventions and also for other major projects in the impacted area. These are presented below.

6.4.2 Impacts Due to Embankments

Currently, there are a large number of families and houses being inundated by floods and these include houses that are built to a decent standard; small scale enterprises and business; and hotels and

restaurants mainly on the left bank of the river. Almost all the residents on the river banks are encroachers.

The inundation of tributaries, such as the Aswathu Oya, Wak Oya, and Pusseli Oya, is a key issue to be considered at the time of project planning. The resettlement of families that reside on the river banks is required, which will likely be less than the cost of the damages caused by floods for these families. Flooding of tributaries should be seriously considered before planning to gain support from the communities living on the river banks.

Existing roads on the river banks that will be affected will need to be restored. In the case of the Homagama DSD, a road in the Embulgama area will be affected. Therefore, an alternative road is to be traced and developed. In addition, there are two BOI Projects in the Homagama DSD that will be affected. It is expected that there will be protests from the people who are sand mining because the CRes MPA intervention will limit access to the river due to embankments. The low level road from Kaduwela to Hanwella area will also be affected by the embankments planned. The RDA needs to be consulted to obtain views, opinions and consent on providing a new road on the embankment or on the side of the embankment.

The Divisional Secretary of the Colombo DSD is not yet clear on how the excess water above five metre gauge at Nagalagam Street is to be diverted through the estuary. He was also of the view that it is necessary to explore the possibilities of diverting storm water in Colombo area to the sea through Beira Lake.

Meanwhile, most of the Divisional Secretaries were of the view that there will be numerous issues on land acquisition; relocation and resettlement; and payment of compensation that need to be handled carefully, transparently, and comprehensively.

6.4.3 Impacts Due to Construction of Reservoirs

The DSDs that are within the area of the bunds and the four reservoirs, were aware of the Project. However, other DSDs within the basin had vague or almost no awareness regarding the CRes MPA. The DSDs that are aware of the project, support the project, especially DSDs in the lower basin areas. However, a main question raised was how the project would affect the tributaries of the river, along with many of the rural villages and communities that are established there.

6.4.4 Contributions from the DSDs to Overcome Impacts

The DSDs on the downstream tributaries were quite concerned about the flood protection of the communities living on those tributaries. These DSDs would strongly support the CRes MPA on flood protection of those tributaries initially prior to establishing embankments.

The Divisional Secretaries are ready to conduct awareness programmes on the CRes MPA among the communities living in the affected area. The DSDs will be able to convince the communities of a need for a permanent solution and prepare them for relocation and livelihood changes.

The most difficult task would be to identify entitlements for compensation or relocation. Divisional Secretaries are of the view that they are able to identify the relevant people/families living in the embankments and reservoirs area.

Some of the DSDs were not exactly aware of their participation in the CRes MPA interventions, probably due to lack of awareness regarding the Project.

6.4.5 Anticipated Legal Implications

In development projects of this nature, numerous legal implications can be expected. Effective and transparent awareness programmes on the project interventions and the distribution of speedy and sufficient compensation packages will be significantly helpful in avoiding most of the legal implications that may arise.

Awareness programmes must be developed to educate the communities on the benefits of the proposed project interventions. Participation of project affected people is essential when selecting sites for relocation and for preparing the resettlement action plan. Awareness programmes must also have components to address issues relating to vulnerable groups, such as women headed households, children, disabled people, and the homeless.

Some of the DSDs indicated that they were not able to implement the legal requirements for resettlement and payment of compensation unless the government takes a policy decision to solve specific matters. Particularly, there will be legal implications in the Homagama DSD pertaining to two BOI projects on the left bank of the river.

6.4.6 Potential Institutional Constraints

All stakeholder organizations need to work together for the successful implementation of the project. The DSDs were of the view that all stakeholder organizations should form a steering committee at the ground level and work together, while sharing project planning and implementation along with the Divisional Secretary who is the chief government representative in the division.

Additionally, it is essential to provide information to communities regarding roles and responsibilities of the relevant stakeholder organizations. To obtain trust and consent from the communities, all stakeholders need to be transparent in all their project undertakings.

6.4.7 Support for Poverty Alleviation

The Divisional Secretaries were of the view that poverty itself is a result of flooding; as communities lose their wealth time after time, and are subsequently left with poor housing, a lack of permanent livelihoods, and a host of other issues. The CRes MPA interventions and solutions to the problem of flooding will empower local communities to enjoy an improved lifestyle as they will be relocated to more feasible locations better livelihood opportunities.

The relocated families are to be provided with appropriate lands and new livelihood arrangements for income generation.

6.4.8 Affects to Gender Norms

Divisional Secretaries were of the view that currently women bear the greater burden associated with flooding. Therefore, avoiding/mitigating floods will contribute to empowering these women. The prevention of hardships due to floods and the restoration from flood events will place a lesser burden on these women.

Divisional Secretaries suggested that the relocation and livelihood arrangements are to be conducted together with the women's organizations and women's participation from the community. Decent housing and livelihood arrangements are to be provided to the displaced families while empowering women in the households.

6.4.9 Ethnic Conflicts

Downstream communities are generally of mixed ethnicity. However, the majority are Sinhalese. Upstream population is also of mixed ethnicity, where the Sinhalese population ratio is much higher than the downstream area. While there are mixed populations living in the basin area, there appear to be no ethnic disputes.

6.5 Consultations with Project Approving Authorities and Project Implementing Agencies

In this context, a stakeholder is any organization that has a stake in the basin's decision-making and who will be affected or who can have influence in terms of economic, political, legal, and environmental impacts. Stakeholders can be internal or external to the basin. They will have a vital interest in the activities of the basin area, and will be affected by an activity or affect the basin by its own activities.

6.5.1 Sri Lanka Land Reclamation and Development Corporation (SLLRDC)

The Senior Officials who are handling specific projects over an investment of LKR 1 billion were interviewed to gather information on their interventions in the area. The SLLRDC is mainly involved with land development; flood mitigation activities; canal maintenance; sea sand dredging; and construction and design works throughout the country. It is a large scale organization operating since 1968, with a workforce of over 1,500 employees.

They are of the view that the construction of flood embankments will increase the river water velocities and will also increase the water levels of the river downstream, which will have a negative effect on the Kalu Oya storm water drainage. However, by constructing reservoirs upstream, river water levels would be reduced and Kalu-Oya inundation area will also be reduced. Hence, this technical matter needs to be resolved between the CRes MPA and the SLLRDC. For this purpose, the SLLRDC is willing to share the feasibility reports with the Project.

The SLLRDC has two important projects in the Kelani Basin area:

1. The feasibility study on storm water drainage and an environmental improvement project for the Kalu Oya basin;
2. A drainage study in Mudun Ela.

These projects are still under the feasibility study stages. The Kalu Oya project is estimated at LKR 9 billion and the Mudun Ela project estimate is not known.

Data collection and the non-availability of required equipment to conduct the studies were the main issues faced by the SLLRDC. In addition, the delays in land acquisitions and the required formal approvals from stakeholder institutions is another issue faced by the institution.

Therefore, the SLLRDC was of the opinion that proper and active co-ordination between the Project Implementing Agency and the stakeholder organizations; strict periodic monitoring; and comprehensive awareness programmes to educate the people living around the canal area are some of the solutions to resolve the current problems.

The major shortcoming that they foresee was the lack of land available for relocation, and the heavy encroachment in the low lying lands in the area.

6.5.2 National Water Supply and Drainage Board (NWSDB)

The National Water Supply and Drainage Board (NWSDB) is the main agency in charge of supplying drinking water and maintaining hygiene for the past four decades. It had been delivering the service in a similar capacity under the administration of the public works department, prior to being taken under the Ministry of Irrigation, Power and Highways in 1995. Currently the NWSDB serves approximately two million consumers.

The NWSDB is of the view that there will be no impacts from the proposed CRes MPA.

The NWSDB has identified the following six projects in the Kelani River Basin that are over LKR 1 billion investment each. The projects involve water supply schemes, the construction of reservoirs, the construction of water treatment plants, the construction of storage structures, and supplying and laying of transmission and distribution systems:

- Weliwita Water Supply Project;
- Kelani Right Bank Water Supply Project (Stage II);
- Construction of Kelani Ganga Upstream Reservoir;
- Construction of Salinity Barrier across Kelani River;
- Kirindiwela Water Supply Project;
- Mabima Water Supply Project.

The total estimated cost of the five projects is LKR 17.2 billion, while the estimated cost of one project is not known yet. All these projects are to be implemented during the period 2018-2026 with foreign funding.

6.5.3 Ministry of Transport and Civil Aviation

The Colombo Suburban Railway Project (CSR) is the only project over an investment of LKR 1 billion. Under the Department of Railways, the CSR is in the initial stages of the project consisting of 18 staff.

This project supports the modernization of the railway network in Western Province from Veyangoda to Panadura. It will improve the capacity of speed in the Colombo Metropolitan Region by modernizing and upgrading tracks, signaling, telecommunication infrastructure, and potential electrification; the procuring fast and modern commuter trains; the modernizing rolling stock; and upgrading railway stations. The project will also increase capacity and the attractiveness of the railway system.

The Project Director advised that there will be no impacts due to the CRes MPA.

The project is estimated at US\$ 1.5 billion and is to be funded by the Asian Development Bank.

The main issues currently faced by the project were the indifferent attitude of the Management Services Department in recruitment; protests from the SLR for not allowing them to handle the project; the resettlement of 4,000 families on the KV Line; and difficulties in finding capable engineers. The lack of awareness of the project among the Department of Railway is also another issue.

6.5.4 Department of Irrigation

The Department of Irrigation confirms that there are no projects in the Kelani River Basin above LKR 1 billion, apart from the CRes MPA.

6.5.5 Colombo Port City Project

This project is jointly implemented by the MMWD the Ministry of Ports and Shipping, the UDA, and Sri Lanka Ports Authority. The estimated cost is around US\$ 140 – 210 billion and the project funded by the CHEC Port City Colombo Ltd/CCCC. The project area covered is 269 hectares of reclaimed sea area.

The objectives of the Colombo Port City Master Plan are to:

- Significantly expand the Colombo Central Business District (CBD) and to meet the demand for such land over a 20-25 year period, by taking advantage of the natural accumulation of sand caused by the South Harbour breakwater;
- Foster integrated oceanfront living within the CBD and provide high quality of life through world-class office, residential, medical, and educational facilities and recreational spaces that will attract tourists, professionals, entrepreneurs, managers, residents, and retirees;
- Position Colombo as the most livable city in South Asia and a regional financial centre;
- Create a business hub, a city with a distinct brand with high quality public spaces, and infrastructure facilities, attractive to local and international developers and investors;
- Create a tourism hub with a unique character that reflects the distinctive local culture and the existing urban fabric;

- Design and build a sustainable urban city space that adapts to local climate, and to create a comfortable micro-climate making efficient use of energy resources.

Based on an analysis of the implementation of overall comprehensive plans prepared for other cities in Sri Lanka, the full endeavour of such plans have not been met. Within an environment where there is low economic growth, heavy foreign debts, and problems of balance of payments, this project is also not expected to reach its objectives over the planning horizon.

The public perception regarding service delivery is not encouraging at present. The main responsibilities of the UDA, SLPA, CMC etc. are poorly managed and the delivery of responsibilities is scattered. In such a context, it is not possible to expect proper management with regards to new areas of development, which may be burdensome to these institutions resulting in neglect of service delivery.

However, the CRes MPA does not have any impacts to the Colombo Port City Project.

6.5.6 Ceylon Electricity Board (CEB)

The Greater Colombo Transmission, Distribution & Loss Reduction Project 2014-2018 is a project undertaken by the CEB. The estimated cost is LKR 18 billion with a foreign funding source.

The aim of the project is to enhance transmission, distribution, and the loss/reduction of electricity within the Greater Colombo area. The plan aims to regulate the transmission and distribution within high demand areas for electricity. The implementation of the project will have a heavy influence on the macro-economic framework in managing the losses incurred due to various reasons, in providing the required power. It will aim to enhance the transmission and distribution to focused areas to increase the productivity of manufacturing industries, service industries etc.

The following projects are the other initiatives of the CEB:

- Construction of Colombo B, In and Out Connection from Colombo C, Kolonnawa 132 kV 800 mm Cable and Augmentation of Kolonnawa and Colombo C Grid Substations 2016-2019 - Rs 1,426 Mn;
- Augmentation of Kotugoda, Kolonnawa, Biyagama Horana GSS & Padukka Switching Station & Construction of Biyagama 220/ 33kV GSS 2016 -2019 - Rs 2,572 Mn;
- Gas Turbine Project 3 x 35 MW 2016-2018 - Rs 8,200 Mn;
- Rehabilitation of Old Laxapana Power Station -Stage 11 equipment 2018-2019 - Rs 5,000 Mn;
- Construction of Kerawalapitiya, Kappalthurai and Kalutara 220 /132 kV GSS and Augmentation of Old Anuradhapura GSS, Construction of Kesbawa and Kalutara GSS and Construction of 132 kV Transmission Lines (GPD &EE11) 2016 -2019 - Rs 5,615 Mn.

The total estimated cost of these projects will be LKR 23 Billion.

Currently, the CEB is also planning on construction of a 20MW hydropower plant on Seethawaka ganga (which is a tributary of the Kelani river). The CEB has spoken to the Irrigation Department regarding this project, in order to identify potential influences/impacts from the Rucastle reservoir which is to

be constructed under the CRes MPA (around 15-20km upstream of the Seethawaka hydropower station). The CEB project currently does not have an estimated cost, and is at the feasibility stage.

6.5.7 Urban Development Authority (UDA)

The Additional Director-General (Project) participated in the discussion and stated that the UDA functions are involved with promoting and planning to integrate and sustain urban development for the physical, social, and economic well-being of the country. It operates throughout the island to implement the UDA Act.

The UDA officials were not aware of CRes MPA interventions in the Kelani Basin area. However, the UDA activities in providing locations for resettlements may be useful for project implementation with regards to resettlements.

The UDA is implementing the following projects, which are over LKR 1 billion investments:

- Middle Income Housing Program – Estimated Cost Depends on the activity PPP;
- Supusan Purawara Program - Estimated Cost Depends on the activity PPP;
- Urban Regeneration Program - Estimated Cost Depends on the activity PPP;
- Horana Industrial Township Project - Estimated Cost: LKR 59 billion;
- Makumbura Multi Model Transport Center - Estimated Cost LKR 0.4 billion.

Horana Industrial Township Programme is a Private Partnership Program with the UDA with an estimated cost of LKR 59 billion. Makumbura Multimodal Transport Project is funded by JICA and is now almost completed. The other three housing projects are Public Private Partnerships with the UDA and potential investors.

The UDA is of the view that their projects will not be impacted due to the CRes MPA and that the CRes MPA will be able to get support from the UDA for relocation and resettlement of underserved settlements included in their programme.

6.5.8 Road Development Authority (RDA)

The RDA is the premier highway authority in the country and is responsible for the maintenance and development of the National Highway Network, comprising the Trunk (A Class) roads, Main (B Class) roads and Expressways. The planning, design, and construction of new highways, bridges, and expressways to augment the existing road network is the responsibility of the RDA. The Additional Director General – Projects and the Director – Planning were interviewed to gather information required for the SSA.

They were of the view that about 1,000 km of different types of roads currently exist within the basin, however, were unable to comment on impacts to these roads exactly. The RDA mentioned that there would be negative impacts due to the embankments in the downstream and reservoirs in the upstream. Also, a number of new road construction activities were already at various stages and it may not be possible to amend these plans instantly.

The following main projects over a total estimated cost of LKR 1,000 million are being implemented by the RDA and would be impacted by the CRes MPA development plans:

- i-Road Project – For the purpose of the development of different types of roads in Kegalle and Ratnapura districts funded by the ADB – Total Estimated Cost – LKR. 71,978 Million;
- Project for Alleviation of Traffic Congestion - Construction of Port Access Elevated Highway, Expressway Connectivity Program and Flyovers to ease traffic congestions in Colombo District funded by ADB and the Spain Government – Total Estimated Cost – LKR 66,828 Million;
- Project for the Reconstruction /New Construction of Bridges – Package 11 for the construction of bridges and culverts in the Kegalle District funded by KFAED – Total Estimated Cost LKR. 2,000 Million;
- Expressway Network Development Projects - Construction of Ruwanpura Highway, Central Expressway, Outer Circular Highway, Southern Extension of Baseline Road and development of other Motor Ways which spread in most parts of the country funded by China Exim Bank, ADB, JAICA, WB – Total Estimated Cost LKR 781,908 Million.

6.5.9 Ministry of Provincial Councils and Local Government

The Director-Planning of the Ministry of Provincial Councils and local Government (MPCLG) advised that the Ministry is managing nine Provincial Councils and 331 Local Authorities in the country. The functions of the ministry cover the spatial extent of the country.

The Ministry was not aware of the CRes MPA or location activities to comment. However, they were of the view that the project activities undertaken by the MPCLG through the Provincial Councils and the Local Authorities will certainly be affected.

The MPCLG is mainly undertaking two projects which are over LKR 1 billion:

- Construction of 463 Rural Bridges and 573 Bridges;
- Health Sector Development Project.

The Bridge Construction Project and the Health Sector Development Project are taking place throughout the country and is an ongoing project (2014-2020). It is financed by the GoSI, the governments of the United Kingdom and the Netherlands. The estimated total cost is LKR 38 billion for the Bridge Construction Project and LKR 26 billion for the Health Sector Development Project.

They were of the view that existing regulations were adequate for project implementation and any changes were not required. Currently, there were no issues or barriers in the implementation of the projects.

6.6 Stakeholder Consultations on Gender

The Secretary to the Ministry of Women and Child Affairs stated that as per the statistical bulletin, out of the total Sri Lankan population of 20.3 Million, 51.6% consist of women. This indicates a sharp decrease in the sex ratio with the fivefold increase in the population during the past century. Women in Sri Lanka play a prominent role in economic, political, environmental, and socio-cultural

sustainability. The participation of women in the labour force has increased to 35% in 2013, constituting 40% of the government sector workforce and 40.28% of the workforce in foreign employment.

The Information Officer and Editor of the National Committee on Women emphasised the fact that secondary data suggests that women in South Asia mostly find themselves in subordinate positions to men. Further, South Asian women have little power in making decisions and have limited access and control over resources.

However, in comparison to women in other South Asian countries, women in Sri Lanka are in a more empowered position. Sri Lanka obtained the 73rd position out of 187 countries in the Human Development Index in 2013. and in terms of gender equality, the country was ranked as the 75th in the Gender Inequality Index.

Despite the execution of multiple poverty alleviation programs by the government and international agencies, poverty still remains an issue. Due to the deprivation of equal rights, pension schemes, and job security, women in the informal sector are more vulnerable to poverty and are more likely to be trapped in generational poverty.

However, despite the issues at hand, a few NGOs, such as Pulse Sri Lanka, Family Planning Association, Positive Women and Plus Lanka, cater to addressing gender related issues in the project area.

6.7 Stakeholder Consultations on Vulnerable Groups

In a discussion with the Director-National Secretariat for Persons with Disabilities, the national level rate of disabilities is 185.5 persons among a population of 10,000. The highest differently abled population in the Kelani basin area is found in the Kalutara District and the lowest is in the Colombo District. Other than the disabilities in seeing, hearing/speaking, mobility, and mental capacities, there is a large percentage of disabilities that fall within other categories of disabilities.

Differently abled persons will be highly vulnerable during mobility restrictions in the project area due to construction activities and heavy traffic movements. Vulnerable groups will face hardships when relocating and resettling at an unfamiliar location as they will need to find new facilities, such as medical treatments centres and educational centres, that can accommodate their disabilities.

Similarly, the Irrigation Department advised it would facilitate sustainable management and improve the land and water resources for food, livelihoods, and environmental services under the framework of government policies. They are heavily involved in the preparation of master plans for development of the different river basins for the optimum utilization of land and water resources. Issues that need to be addressed regarding the poverty of rural farming communities is to engage them in facilitating drainage systems for cultivable lands and to assist them in increasing their farm income.

An official from the Ministry of Social Empowerment and Welfare advised that one of the Ministry's responsibilities is to include poverty alleviation, and the empowerment of elders and disabled persons, within the ministerial framework. The Sustainable Development Goals, to be achieved by Sri Lanka in

2030 under its framework, target vulnerable persons as beneficiaries of sustainable development endeavours.

The Director of Information from the Department of Samurdhi Development explained that the main objective in establishing this Department was to eradicate poverty and to create a society ensuring social justice, through the promotion of livelihoods and economic development activities centred on the individual, the family, the group, and the community.

Their mission is to empower disadvantaged people and reduce regional disparity through the delivery of effective, efficient, speedy, and productive solutions for the target beneficiaries by making use of departmental, CBOs, micro-finance institutions in collaboration with private, public, people, and political sectors, and local and global agencies.

7. LEGAL, INSTITUTIONAL, AND REGULATORY FRAMEWORK

The proposed interventions under Stages 1 and 2 are expected to affect 13 Divisional Secretary Divisions located within the Colombo, Gampaha, and Kegalle Districts. The interventions will require the recovery of state land and/or the acquisition of privately owned land, resulting in some physical and economic displacement of people living in the proposed project areas. The proposed activities are also considered as “Prescribed” under the National Environmental Act.

This chapter examines the laws and policies that are relevant to the recovery of possession of state lands, land acquisition, and involuntary resettlement. The regulatory role of the relevant government agencies and the present capacity of the PMU and possible interventions to enhance the capacity is also discussed.

7.1 National Legal Framework Relating to Land Acquisition and Resettlement

7.1.1 Land Acquisition Act No. 9 of 1950

The acquisition of land for public purposes is guided by the provisions and procedures outlined in the Land Acquisition Act No. 9 of 1950 (LAA) and its subsequent amendments. The LAA provides a framework for land acquisition and guarantees that no one can be deprived of land except under the provisions of the LAA, and it entitles Affected Persons (APs) to a hearing before acquisition. The acquisition of land for public purposes is a time-consuming process and can take anywhere between a few months to about 2-3 years to complete. The LAA discourages unnecessary acquisition. Land that has been acquired for one purpose cannot be used for a different purpose and land that remains unused has to be returned to the original owners.

A major cause of delay in land acquisition arises is the compensation procedures and related legal proceedings. However, there is a provision under section 38A of the LAA to acquire lands under an urgency clause.

One of the inadequacies of the LAA is that the onus to prove ownership or interest in, to demonstrate clear title to, and to gather all the information and submit a claim for compensation for the land to be acquired, rests with the affected persons. The people being displaced are often unaware of their rights or the timeframes that have to be observed under the LAA. Or, they are aware, but are ill equipped to deal with the required procedures and lack experience in dealing with government officials and providing the necessary documentation.

Under the LAA, the Ministry of Lands is responsible for land acquisition, which is carried out by acquisition officers who are appointed by the Minister of Lands. All Divisional Secretaries are ex-officio Acquisition Officers, whereas the Valuation Department is responsible for the valuation. The law only provides for compensation to affected persons who are in possession of valid titles, and have their titles registered in the respective Land Registries. It does not recognize the rights of the non-title

holders, such as squatters, who do not possess legal title to the land they live in or make a living from. There is no provision to mitigate the impacts on non-owners under the LAA.

The LAA provides for compensation for land and other fixed assets built and grown on them (structures, trees, orchards, and crops). It also covers loss of income for people who can provide documentary proof of their losses, up to a maximum of their average net profit for the three years immediately preceding publication of the section 7 Notice under the LAA. The Land Acquisition Regulations 2008 (LAR 2008) introduced provision to compensate for loss of income and other impacts based on furnishing other evidence in lieu of the documentary proof of payment of income tax. However, the LAR 2008 does not cover people that cannot produce any documentary evidence of loss of income.

7.1.2 Land Acquisition Regulations of 2008 (LAR 2008)

Several progressive provisions have been made to modify the LAA. The LAR 2008 issued under section 63(2)(f) of the LAA, were passed in Parliament on March 17, 2009 and were made effective by Government Gazette No. 1596/12 of April 7, 2009. They provide revised guidelines for the statutory payment of compensation that goes beyond the depreciated value of a land or structure and consider the principle of current market value, and provide for payment of compensation for injurious affection and severance, equivalent to the full cost of the damage, based on the market value of the land to acquire. The LAR 2008 was designed to incorporate the concept of replacement cost in the valuation of land and other assets. The LAR 2008 requires compensation for land to be paid at market rates, along with the cost of reconstruction for houses and other structures, without taking into account depreciation of the buildings. The LAR 2008 also provides for the valuation and compensation of the whole plot of land when determining the proportional cost of the affected land parcel, and includes provision to compensate for loss of business income, as well as relocation assistance and other benefits.

The LAR 2008 provides for affected persons to be entitled to a hearing before their land is acquired. However, the level of compensation can only be determined by the Valuation Department. The LAR 2008 stipulates minimum time periods for specific tasks, elements, and the procedures for land acquisition.

7.1.3 Land Acquisition Regulations of 2013 (LAR 2013)

The Land Acquisition Regulations 2013 (LAR 2013) exemplify a more humane approach to land acquisition and provide for a comprehensive compensation package that goes beyond that set out in the LAA and LAR 2008. It provides for *ex gratia compensation* and non-statutory payments of compensation through Land Acquisition Review Committees (LARC) and Super LARC systems that are able to review the cases of people who are dissatisfied with the statutory payments, and/or who are ineligible for statutory payments under the LAR 2008.

In view of the incidence of affected people submitting claims under the National Policy 2008 and the LAR 2008, the LAR 2013 allowed certain development projects to be designated as 'specified projects' by the Ministry of Lands, with the ratification of the Parliament of Sri Lanka. Eighteen projects were initially included in the list, which was set out in the government gazette No.1837/47 of 22.11.2013.

The specified projects provide for the establishment of Review Committees in the Divisional Secretariats, so that persons affected by land acquisition can make their representations. Affected parties have the opportunity of appearing before the LARC proceedings, and those people that are dissatisfied with the decisions of the LARC can appeal to a Super LARC established at the national level.

7.1.4 Analysis and Relevance to CRes MPA

Any sub-project activity requiring land acquisition of both permanent and temporary nature, particularly those resulting in impacts on properties and/or livelihoods of individuals and groups, will need to follow the provisions provided in the LAA, regulations, and the policies. The project has not been given the 'specified' status, which would have allowed it to apply the LAR 2013. These provisions and the World Bank policies, Operational Policy 4.12 (OP 4.12), will apply to determining the entitlements, valuation of assets, payment of compensation, and/or extending other types of assistance to the affected persons and families.

The proposed project interventions will acquire private land, and displace both title owners of land and non-title settlers in such acquired lands. The application of the LAR 2008 is necessary to provide all affected persons with sufficient entitlements and compensation in order to avoid any affected person being adversely impacted due to the land acquisition process. The application of the LAR 2008 will also keep the project's land acquisition and resettlement process in line with international best practices of involuntary resettlement.

7.2 National Laws Relating to Recovery of State and Other Public Land

7.2.1 Crown Lands Ordinance No. 8 of 1947

The Ordinance makes provision for the grant and disposition of Crown land in the country; for the management and control of such lands and the foreshore; for the regulation of the use of the water of lakes and public streams; and for other matters incidental to or connected with such matters. If the rights of owners are extinguished by the operation of the Ordinance, owners are entitled to claim compensation for the actual loss suffered.

7.2.2 State Lands Act No. 13 of 1949

This Act provides for the grant and disposition of state land in Sri Lanka; for the management and control of such lands and the foreshore; for the regulation of the use of the water of lakes and public streams; and for other matters incidental to or connected with such matters.

Section 51 stipulates that title to state reservations cannot be acquired by possession or usage. Section 53 exempts the state from any liability to pay compensation for improvements effected on reservations. Section 54 provides for summary eviction of offenders in unlawful possession of state land reservations.

Section 103 provides that no person can, by possession or the use of land, acquire any prescriptive title against the Crown, if such land is (a) after the commencement of the ordinance declared to be

the property of the Crown under the Land Settlement Ordinance, or (b) is acquired by the Crown under the LAA after such date, or (c) after such date resumed by the Crown under the Land Redemption Ordinance and has at any time prior to or after the declaration, acquisition or redemption, been delimited with boundary markers by or under the authority of the Surveyor-General.

7.2.3 State Lands (Recovery of Possession) Act No. 7 of 1979

This Act deals with the recovery of possession of state lands from persons in unauthorized possession or occupation. Section 10 stipulates that no appeal is maintainable against an order of eviction by a Magistrate. Section 13 provides for reasonable compensation for damages sustained by reason of the affected person having been compelled to deliver up possession of such land.

7.2.4 Land Development Ordinance No. 19 of 1935

This Ordinance deals with the systematic development and alienation of Crown land.

Chapter 7 sets out the procedures for cancellation of a right to state land given on permit or grant due to non-compliance of the conditions of permit. Section 106 gives notice to the permit holder where there has been a breach of the condition of permit. If a person fails to appear before the inquiring officer, provision is made under Section 109 to cancel the permit. Section 110 lays down the procedure where the permit holder appears and shows cause for the failure to develop the land as per provision of the permit given to him. Section 112 prescribes the order of Government Agent to be served on the permit holder and to be posted on land. Section 113 provides for an appeal to the Land Commissioner against the order of the Government Agent.

The procedure for eviction of a person occupying state land that has been given on a grant is set out in Chapter 9. Section 168 stipulates the offences in regard to state land. It says that if any person clears or prepares any state land for cultivation or erects any building or structure on any state land, fells any trees standing on such land or otherwise encroaches on such land without the permission of the Government Agent they will be guilty of an offence and subject to a fine and imprisonment. Thus, under the laws of Sri Lanka, the rights of a *mala fide possessors* are not recognized and no compensation can be paid for the improvements.

7.2.5 Prescription Ordinance No. 22 of 1971

This Ordinance confers rights on people who have had unencumbered possession of private land for over 10 years. Section 15 states that nothing in the Ordinance shall affect the rights of the Crown (State). The Ordinance makes express provision with respect to the means by which a person may acquire the ownership of a block of land through the peaceable and uninterrupted possession of it for a period of ten years. Section 3 of the Ordinance provides as follows: "Proof of the undisturbed and uninterrupted possession by a defendant in any action, or by those under whom he claims, of lands or immovable property, by a title adverse to or independent of that of the claimant or plaintiff for ten years previous to the bringing of such action, shall entitle the defendant to a decree in his favour with costs."

7.2.6 Temple and Devalagam (Compensation) Ordinance No. 28 of 1944

This Act deals with land donated to the temples and devala (places of religious significance) by rulers under a deed of dedication or ‘*Sannasa*’ (Order) for the maintenance of such institutions. The rights of the custodian of temples and devala for the receipt of compensation in the event of land acquisition for public purposes are spelt out in this Act.

7.2.7 Land Commissioner General’s Circular 2014/02

The Land Commissioner issued instructions to the Divisional Secretaries, Deputy Land Commissioners, and Assistant Land Commissioners by Circular No. 2013/01 dated 31 January 2013 to solve the problem of loss or damaged documents experienced by people due to the conflict. However, in the implementation process, several complications arose. Further instructions were issued by Circular No. 2014/02, dated 23 January 2014, which provides clarification to help officers settle the issues encountered.

7.2.8 Land Settlement Ordinance No. 20 of 1931

Developed after the Crown Lands Ordinance No. 12 of 1840, this Ordinance allows members of the public to put forth claims to land (by showing a legal document such as a title deed). Any unoccupied land or cultivated land not claimed by the public are published by the Land Settlement Officer, and if no claim to such land or to any share of or interest in such land is made to him within a period of three months from a date to be specified in the notice, the land is declared as state/ crown land under the Ordinance.

7.2.9 Registration of Title Act No. 21 of 1998

Under Act “Bimsaviya” is being implemented as a national programme. This involves land being surveyed, demarcated, ensured ownership, and issued with a Title Certificate. The process is free of charge. The following government organizations assist the Ministry of Land to implement the Bimsaviya:

- Department of Land Settlement;
- Department of Survey;
- Land Commissioner General’s Department;
- Department of Registrar General.

7.2.10 Analysis and Relevance to CRes MPA

The majority of the project impacted area is the river embankments. The State Lands Act regulates the use of the Kelani river and management and control of the reservations. Accordingly, no person is entitled to compensation for any reservation along the Kelani river.

The Crown Lands Ordinance provide the rights of owner of any land on the embankment to use water for any purpose of that land.

Through the State Lands (Recovery of Possession) Act, further legal proceedings are barred against an order of eviction by the Magistrate's Court for those in unauthorized possession or occupation of state land.

The majority of land in the impacted area has disputes around ownership. The affected persons owned the land by virtue of usage or by gifts without a document, or it is legally undivided land with one deed for many land plots. The Registration of Titles Act will assist the CRes MPA to settle title issues.

The Temple and Devalagam Act will be relevant as the project area includes places of worship.

7.3 National Policies on Resettlement

7.3.1 National Involuntary Resettlement Policy 2001 (NIRP)

7.3.1.1 Rationale of the NIRP

The LAR 2008 only provides for compensation to be paid for acquired land and structures, and the loss of income for some categories. It does not require the project implementing agencies to address key resettlement issues, such as exploring alternative project options that avoid or minimize impacts on people; compensating those who do not have title to, but are currently using and are dependent on the land; or implementation of income restoration measures aimed at the social and economic rehabilitation of displaced/affected persons. It also does not deal adequately with the impacts on occupiers of lands who are not the legal owners but occupy land being taken for development purposes.

To ensure that displaced/affected persons are treated in a fair and equitable manner, and to ensure that people are not impoverished or suffer unduly as a result of public or private project implementation, Sri Lanka has adopted a national policy to protect the rights of all people affected by development projects. To remedy the current gaps in the LAA in addressing key resettlement issues, the Cabinet of Ministers approved the NIRP on 16 May 2001.

The Ministry of Lands has the institutional responsibility for implementing the NIRP. The NIRP is principled on human and ethical considerations based on the payment of resettlement value (replacement cost) and arranges for resettlement and, where necessary, even rehabilitation. Even though the NIRP is not on the statute books, the policy is adopted by the GOSL for projects funded by the GoSL, the Asian Development Bank (ADB), the Japanese Bank for International Co-operation (JBIC), and the World Bank. The NIRP applies to all projects where private land is acquired for public purposes.

Any public official who contravene the NIRP is subject to disciplinary action by the heads of the respective institutions/organisations. It is also an issue that can be raised at Parliamentary Select Committees by a Member of Parliament on behalf of APs or inquired by the Ombudsman of Parliament, the Human Rights Commission, or by the courts.

If affected persons are not satisfied with the decision of the acquiring officer, they have a right of appeal to the Land Acquisition Review Board (LARB) within three weeks of the receiving the letter of award on compensation.

In the past, the practice has been to follow the policies of the ADB, the JBIC, the World Bank, and other relevant donors when encountered with ambiguity between donor policy and the NIRP/LAA. At close examination it appears that the NIRP and donors' policies, particularly that of the ADB and the World Bank, are congruent in most of the issues. Contravention of provisions of the RAP, prepared based on the NIRP and donor policies, could invite sanctions from the donors too.

7.3.1.2 Scope

A comprehensive Resettlement Action Plan (RAP) will be required where 20 or more families are affected. If less than 20 families are affected, the policy still applies, but a plan can be prepared to a lesser level of detail. The policy will apply to all projects regardless of the source of funding. The policy is applicable to all projects in the planning phase on the date the NIRP became effective, and all future projects.

7.3.1.3 Objectives of the NIRP

The objectives of the NIRP are to:

- Avoid, minimize, and mitigate the negative impacts of involuntary resettlement, by facilitating the re-establishment of the affected people on a productive and self-sustaining basis. The policy should also facilitate the development of the project-affected people and the project.;
- Ensure that people adversely affected by development projects are fully and promptly compensated and successfully resettled. The livelihoods of displaced persons should be re-established and the standard of living improved;
- Ensure that no impoverishment of people shall result as a consequence of compulsory land acquisition for development purposes by the state;
- Assist adversely affected people in dealing with the psychological, cultural, social, and other stresses caused by compulsory land acquisition;
- Make all affected people aware of processes available for the redress of grievances that are easily accessible and immediately responsive;
- Have in place a consultative, transparent and accountable involuntary resettlement process with a time frame agreed to by the PMU and the affected people.

7.3.1.4 Policy Principles

The principles of the NIRP are:

- Involuntary resettlement should be avoided or reduced as much as possible by reviewing alternatives to each project as well as alternatives within the project design and plans;
- Where involuntary resettlement is unavoidable, affected people should be assisted to re-establish themselves and improve their quality of life;
- Gender equality and equity should be ensured and adhered to throughout the policy;
- Affected persons should be fully involved in the selection of relocation sites, livelihood compensation, and development options at the earliest opportunity;
- Replacement land should be an option for compensation in the case of loss of land; in the absence of replacement land cash compensation should be an option for all affected persons;
- Compensation for loss of land, structures, other assets and income should be based on full replacement cost and should be paid promptly. This should include transaction costs;
- Resettlement should be planned and implemented with full participation of the provincial and local authorities;
- Assist those affected to be economically and socially integrated into the host communities; participatory measures should be designed and implemented;
- Common property resources and community and public services should be provided to affected people;
- Resettlement should be planned as a development activity for the affected people;
- Affected persons who do not have documented title to land should receive fair and just treatment;
- Vulnerable groups should be identified and give appropriate assistance to substantially improve their living standards;
- Project executing agencies should bear the full costs of compensation and resettlement.

The adoption of the NIRP in its entirety will make it possible to conform fully to the policies of the World Bank. Of note, the RDA has a special unit called the Environment and Social Unit to assist it in dealing with affected persons and it is experienced in such work.

7.3.2 National Policy for the Payment of Compensation 2008

The NIRP states that compensation should be based on full replacement cost and should be paid promptly with transaction costs. This policy is in congruent with international practices and conforms

with safeguard statements of the leading lending institutions. However, the LAA provides for the payment of compensation at market value and defines the market value as the amount which the land might be expected to have realized if sold by a willing seller in the open market as a separate entity. This definition would cause hardships to the owner if a small stretch of a large land is acquired since a small stretch of land fetches a minimum value in the market.

With the adoption of the NIRP, a compensation package was introduced to pay compensation for the land acquired for the construction of the Southern Expressway. A prominent feature of this package was the establishment of a committee chaired by the Divisional Secretary of the relevant DS Division. The Committee comprised the Superintendent of Surveys or his representative, the Regional Valuer or his representative, a representative of the project executing agency, and an affected person. This committee known, as the Land Acquisition and Resettlement Committee (LARC) is expected to review the statutory valuation granted by the Acquiring Officer and recommend compensation for land and structures to reflect the replacement cost of the assets. Affected persons aggrieved by the decision of the LARC have a right of appeal higher committee at the national level, called a Super LARC. The Super LARC is chaired by the Secretary of the ministry which implement the project. The LARC system was abolished in 2008 and the LAR 2008 were introduced to deal with compensation.

The LAA emphasises the payment of compensation for individual APs rather than the loss of properties which are community owned. The LAA provides for the payment of compensation for the loss of income for those who maintain accounts, with a net average income for three calendar years immediately preceding the publication of section 7 notice. The LAA is silent on informal businesses. Most of the adverse clauses on the payment of compensation contained in the LAA are not followed at present, as the LAR 2008 and LAR 2013 are preferred.

The LAR 2013 also reintroduced the LARC and Super LARC system. LARC and Super LARC are empowered to revisit the market rates offered to APs by the Department of Valuation and decide on payments for other disturbances for some selected projects. If the authorities resort to acquire land under section 38(a) as an urgent requirement, the LAA provides for payment of interest from the date of publication of the section 38(a) notice until the full settlement of the compensation. The World Bank does not encourage emergency acquisition process, as such, land acquisition for this project will be done under the normal method.

7.3.3 Compensation for Non-Titled Persons

According to NIRP, affected persons who do not have documented title to the land should receive fair and just treatment. After the section 7 notice is published by the acquiring officer, every person interested in the land to be acquired or over which the servitude to be acquired should notify in writing the nature of their interest in the land, the particulars of the claim for compensation, the amount of compensation, and the details of the computation of the amount sought as compensation. The term person interested is defined as: “person interested with reference to a land means a person having an interest in the land as owner, co-owner, mortgagee, lessee or otherwise, whether absolutely for himself or in trust for any other person or any charitable, religious or other purpose or a person having a servitude over the land, but does not include a tenant on a monthly basis”.

Affected persons without title and in occupation of state land will be eligible for compensation on the improvements made on the land and for entitlements for disturbances. Those who are squatters on private land and have enjoyed over 10 years of unencumbered possession are entitled to prescriptive rights.

7.3.4 Eligibility for Compensation (Cut-Off Date)

For affected persons with title to the land, the date of eligibility is the date on which the section 2 notice under the LAA is published. For affected persons with no title, the date of eligibility is the last date of the Land Acquisition and Resettlement Survey (LARS) and Socio Economic Survey (SES).

7.3.5 Implications of Land Acquisition

The developmental interventions in the Kelani River Basin requires a significant amount of land needing to be acquired. Development projects which include land acquisition also induce involuntary resettlement. This can lead to the following physical, social, and psychological impacts:

- Landlessness;
- Homelessness;
- Impoverishment due to loss of income;
- Increase in morbidity;
- Premature deaths;
- Loss of identity-marginalization;
- Loss of social and cultural bondages;
- Marginalization;
- Loss of community lands;
- Loss of common resources/access to common resources;
- Loss of services/disruption to services;
- Restriction of access to health and educational services.

Once a section 2 notice is published (declaring the government's intention to acquire land), land owners are prohibited from disposing of their land within one year of the publication of the notice. Land owners are also restricted from undertaking any activity which will reduce the value of the land in real or in direct terms. Any transaction done during the 12 months after publication of the section 2 notice is not valid, and those who committed any action to lower the value of the land are subjected to a fine of Rs 1,000.

Land owners can suffer financial loss if the government chooses to drop the acquisition of land after the 12 month period.

Land acquisition is a complex and time consuming process. There have been occasions where completion of acquisition of a single plot of land has taken more than a year. Delays in surveying the land and assessing valuation are some of the reasons for the delays.

The value of the land is assessed based on the market value of the land on the date of the section 7 notice. There have been long delays between the making the value assessment and the payment of compensation. This has resulted in the reduction of the real value of the compensation awarded, due to the depreciation of the rupee, inflation, the appreciation of the cost of inputs, and the value of alternate land for resettlement.

Although the LAA provides for the allocation of state land in lieu of compensation for resettlement or reestablishment of businesses, it is not always practicable to find alternate suitable state land for such purposes. The establishment of businesses in alternate locations can create many adverse consequences, due to the loss of customers, resulting in loss of income, and in certain instances, closure of the business.

The displacement of a considerable number of families in one community affects businesses linked to the community. For example, businesses such as bakeries, potteries, service providers like barbers, and washers. Significant displacement will also have a major impact on village temples, where the monks depend on the community for their food and other services.

The acquisition of agricultural properties affects community activities connected with agricultural practices, such as cleaning and maintenance of irrigation canals which feeds a track of paddy fields.

If compensation for the acquired assets for the project is paid according to the provisions of the LAR 2008, it creates an anomaly since some of the new projects, which are comparatively small in extent and volume, are being covered by the LAR 2013. The compensation package detailed out in the LAR 2013 is more beneficial to affected persons than the LAR 2008. The LAR 2013 provides additional benefits, such as the LARC and Super LARC system, additional allowance for self-relocation, special treatment for vulnerable families, and assistance to sub families.

7.4 Legal and Regulatory Framework Related to Environment, Flood Protection, and Disaster Management

7.4.1 National Environmental Act No. 47 of 1980

The National Environmental Act (NEA) was introduced in 1980 as an umbrella legislation to provide a holistic framework for the protection and improvement of the environment. The 1988 Amendment vested the Central Environmental Authority (CEA) with the legal authority to protect, manage and enhance the environment, and specifically to control pollution. The CEA has introduced an environmental licensing scheme aimed at all polluting projects and helped establish pollution mitigation regulations (1990) and a statutory requirement for an Environmental Impact Assessment (EIA). The NEA requires environmental clearances to be sought for specific types of new projects.

The EIA process in Sri Lanka applies only to “prescribed projects”, which have been published in the Gazette under section 23 Z of the NEA. This order lists two groups of projects that require an Initial Environmental Examination (IEE/EIA) before they can be implemented. The EIA should identify the potential adverse and beneficial impacts of the proposed projects, together with measures to minimize such adverse impacts. Based on the initial screening, a full EIA, partial IEE, or no environmental assessment may be required.

The NEA also refers to involuntary resettlement. The prescribed project schedule requiring an EIA includes reference to “involuntary resettlement exceeding 20 families, other than resettlement resulting from emergency situations”.

7.4.2 Forest Ordinance No. 16 of 1907

Land declared as “forest land” is administered by the Department of Forest Conservation (DFC). The department has no authority to release land on long-term lease, and can release land only on renewable annual permits. Land within conservation and strict reserves cannot be released by the DFC for other purposes. However, land required for public purposes can be released by the DFC when requested by the relevant state agency, providing it satisfies the conditions laid down in the NEA for prescribed projects. The construction of new road over 10km in length or the conversion of more than one hectare of land for non-forest activity is considered as a prescribed project. If the development is taking place within 100m of the boundary of a reserved forest, an EIA has to be prepared by the respective Project Partner Agency (PPA).

7.4.3 Irrigation Ordinance No. 32 of 1946

This Ordinance was enacted to amend and consolidate all laws relating to irrigation. Land required for development works under the Irrigation Department is deemed to be land required for public purposes within the meaning of the LAA.

7.4.4 Flood Protection Ordinance No. 4 of 1924

This Ordinance relates to the protection of areas subject to damage from floods. The Minister in charge of the subject will declare any area in Sri Lanka to be a flood area and the Director of Irrigation or any other authorized person appointed will prepare and carry out flood protection schemes under the Ordinance. The District Secretary of the administrative district shall be the flood authority for the flood area. The flood authority is empowered to maintain the dams, draining trenches, outfalls, sluices, locks, and other flood related works in good order. Any persons not complying with any regulation will be guilty of offence and liable to fines.

7.4.5 Sri Lanka Disaster Management Act No. 13 of 2005

This Act provides for the establishment of the National Council for Disaster Management; the disaster management centre; the appointment of technical advisory committees; the preparation of disaster management plans; the declaration of a state of disaster; and the award of compensation and for

matters connected therewith or incidental when the human life, property, and the environment of Sri Lanka is being threatened and endangered due to certain disasters taking place in Sri Lanka.

7.4.6 Soil Conservation Act No. 25 of 1951

The Act addresses the conservation of soil resources for the prevention or mitigation of soil erosion, and the protection of land against damages by flood and drought. On the basis of surveys and investigations carried out by the Director of Agriculture for the purposes of ascertaining the nature and extent of soil erosion and of damages to land caused by floods and drought, the Minister may by Order published in the Gazette declare any area to be an erodible area.

7.4.7 Agrarian Development Act No. 46 of 2000

The Act deals with the construction, maintenance, and administration of the water conveyance systems and the regulation of the functions of farmer organizations within administrative districts.

7.4.8 Analysis and Relevance to CRes MPA

The proposed programme includes several physical interventions, including the flood bunds and the construction of upstream reservoirs that require an Environmental Impact Assessment under the provisions in the National Environmental Act. The guidelines provided in the EAMF prepared under the MPA will be applied to adhere to the provisions under the Act.

In combination with the National Environmental Act, the Forest Ordinance sets out the conditions for the project in using prescribed forests, roads, and boundaries.

The whole project focuses on flood mitigation there for this legislation is applicable. The Flood Protection Ordinance will declare the flood areas which will likely be within the basin impacted area, based on the history of events, and make responsible flood prevention infrastructure. Since the construction of the flood prevention infrastructure is the key activity in this project the involvement of the Flood Authority (District Secretary) is essential.

As the project itself is a response to an associated disaster, the Disaster Management Act will be applicable to all stages of the project.

In view of the nature of the project interventions, conservation of soil resources is vital and adherence to orders of the Minister of Agriculture on soil erosion, damages due to soil erosion, and earth slips is crucial.

The proposed reservoir at Wee Oya will inundate some paddy lands and their water supply and drainage systems. If the project is to find alternate paddy lands for the affected persons, such action will need to be taken in consultation with Department of Agrarian Development.

7.5 National Regulatory Framework Related to Public Infrastructure and Services

7.5.1 Urban Development Authority Law No. 41 of 1978

The Act provides for the establishment of an Urban Development Authority (UDA) to promote integrated planning and implementation of economic, social, and physical development of certain areas as may be declared by the minister to be urban development areas and related matters.

7.5.2 Urban Development Projects (Special Provisions) Act No. 2 of 1980

This Act provides for the declaration of lands urgently required for carrying out urban development projects and for related matters.

7.5.3 Road Development Authority Act No. 73 of 1981

The Road Development Authority (RDA) was established by Road Development Authority Act No.73 of 1981. The main objectives for setting up RDA are to: formulate national policies for highway sector in achieving national development goals; provide high mobility among townships, efficient connectivity among economic centres and improve accessibility for rural areas; maintain the road network in excellent standards to contribute to sustainable development; provide Intelligent Transport System (ITS) for efficient traffic management; invest on capacity enhancement of road sector to ensure high level service and user friendly roads; and invest in research and development for enhancement of the road sector, including enhancing road safety measures for road users.

7.5.4 Thoroughfare Act No. 40 of 2008

The Act empowers the Highway Authority to establish a Road Network Development Advisory Council and District Road Development Coordinating Committees. The Highway Authority can prevent unauthorized constructions within the road reservations, construct new roads, divert roads, acquire lands vested in a local authority, and make special grants under the Crown Land Ordinance. The authority has the power to alienate lands, temporarily close a road, public road or national highway, erect fences, and declare building limits alongside a road. The Minister can also designate a user fee for national highways, purchase lands for resettlement sites and authorize a survey to enter lands for the purpose of surveying, and to mark the acquisition boundaries. This helps to expedite the process of design and preparation of resettlement plans. Prior to this Act, surveyors could enter private land only after the issuance of a section 2 notice under the LAA.

Previously, land required for development purposes by the state was acquired through the acquisition officers appointed by the Ministry of Lands. The power to purchase land by the Highway Authority has accelerated the procedures of resettlement, and officers can also pay compensation for the damages caused to properties. Overall, this Act has the potential to facilitate the construction of new roads and the improvement to existing roads given the more proposed mechanisms for acquisition of land, payment of compensation and resettlement. However, the rules to implement the Act have not been enacted by Parliament.

7.5.5 Municipal Council's Ordinance No. 29 of 1947

This Ordinance was meant to amend and consolidate the law relating to Municipal Councils. It came into operation on August 15, 1947 and comprises sixteen parts. The Ordinance empowers the Municipal Councils to regulate, control and administration of all matters related to the public health, public utility services, public thoroughfares, and generally with the protection and promotion of the comfort, convenience and welfare of the people and the amenities of the Municipality. The movable properties vested with MCs include waste land, stone, gravel and cabook quarries, lakes, ponds, reservoirs, tanks and other waterworks, public parks, gardens and open spaces, public markets, graveyards and state land with or without buildings. The Ordinance also requires that any development within the boundary of a Municipal Council would require concurrence.

7.5.6 Sri Lanka Land Reclamation and Development Corporation Act No. 15 of 1968

The purpose of this Act is to provide for the establishment of a Corporation, to be known as the Sri Lanka Land Reclamation and Development Corporation (SLLRDC), for the development and reclamation of areas declared by order of the Minister, which the corporation requires for construction work and consultancy assignments and for related matters. The Corporation is empowered to take legal action against unauthorized reclamation activities and the pollution of water bodies. The penal provisions are incorporated under Sections 20C and 22A. Specifically, the amendments introduced by Act No. 35 of 2006 aimed:

- To have the custody, management, improvement, maintenance and control of canals and prevention of pollution of canals;
- To prohibit filling or developing any area of land declared to be a Reclamation and Development Area under sections 2A and 2B of the Act, without the written approval of the Corporation;
- To declare any area of land other than an area declared to be a Reclamation and Development Area under section 2, as a low lying marshy, waste or swampy area;
- To declare any area of land on a canal bank as a “Canal Reservation” and prohibiting the construction of buildings or structures in such area without the written approval of the Corporation.

7.5.7 Analysis and Relevance to CRes MPA

Many areas to be covered under the CRes MPA, including key areas to be resettled for project interventions, fall under the UDA jurisdiction, including the Colombo Metropolitan Region. Project activities need to maintain consistency with the UDA regulations, especially in terms of the land acquisition and resettlement activities that will be financed under Phase 1 and 2 of the MPA.

The proposed project interventions along the river embankment and the construction of reservoirs in the upstream will result disruptions to many roads in different classes. This will require new roads to be designed or the elevation of existing roads. Close co-ordination with the RDA will be vital.

The Thoroughfare Act will not directly have impact on the project. However, it will indirectly impact on the construction of new roads or the diversion of roads and land acquisition for the construction of roads that are impacted due to project interventions.

The Kelani basin includes a number of key retention areas that come under the SLLRDC. The flood and drought management activities that are proposed are being designed with close collaboration between SLLRDC and the Irrigation Department. It is essential that any wetlands identified by the SLLRDC for protection are maintained in the same way as part of project interventions. Any works on these retention areas will need concurrence from the SLLRDC.

7.6 Gender and Women

7.6.1 Women's Charter

The state policy on women in Sri Lanka is articulated in the Sri Lanka Women's Charter of 1993, which is based on United Nation Convention on the Elimination of all forms of Discrimination against Women. Seven areas of concern, specific to women in Sri Lanka are addressed in the Charter (civil and political rights, right to education and training, right to economic activity and benefits, right to healthcare and nutrition, rights within the family, right to protection from social discrimination, and right to protection from gender based violence). The Charter provides for the establishment of a 15-member National Committee on Women, to monitor and ensure the implementation of the provisions of the Charter.

7.6.2 National Committee on Women

The National Committee for Women (NCW) is comprised of a Chairperson and experts from fourteen sectors, all appointed by the President for a period of four years; ten staff members; a legal officer with eight support staff; an Executive Director, also appointed by the President; and the Secretary of the Ministry of Women's Affairs, who serves as an ex-officio member of the Committee. Together, their mandate is to monitor and ensure the implementation of provisions as stated in the Women's Charter. The NCW accomplishes this through their powers of policy formulation, awareness raising, and advocacy. A Gender Complaints Unit has also been established to receive complaints on gender-based discrimination.

7.6.3 National Action Plan for Women

In late 1995 and early 1996, the Ministry of Women's Affairs and the National Committee for Women (NCW) formulated the National Plan of Action for Women in Sri Lanka. Through several key measures, the National Plan of Action reflects the critical areas of concern set forth in the Beijing Platform for Action. The Plan identifies problems and issues, sets goals for their solution, recommends strategies and activities, and is responsible for the identification of implementing agencies. There are eight sectors in which programmes under the Plan were proposed, including: violence against women; human rights and armed conflict; political participation and decision-making; health; education and training; economic activities and poverty; media and communication; environment; and institutional strengthening and support. Since its inception, the Plan was revised in 1998 and 2000.

7.6.4 Prevention of Domestic Violence Act 2005

Failing to implement proper legal action, weak law enforcement and lack of public awareness, with regards to sensitive matters such as criminalizing incest and sexual abuse and harassment has resulted in introducing the Prevention of Domestic Violence Act in 2005 have hindered the eradication of violence against women. Amendments to minimum age of marriage to 18 years and criminalizing marriage under 16 years as statutory rape (excluding the Muslim communities) have positively impacted the life of women in general. In addition, the Prevention of Domestic Violence Act of 2005 was introduced to protect the victims and to empower them to seek legal assistance.

7.6.5 Analysis and Relevance to CRes MPA

A 'Gender and Vulnerable Community Development Plan' is to be prepared under the project. The Plan will adhere to the obligations made under the Charter. This includes the conditions set out by the National Committee for Women. Active participation of the NCW is expected during the project implementation.

7.7 Labour Laws

The legislative framework relating to industrial, employment, and labour relations is governed by a number of statutes. The terms and conditions of employment are governed by the Wages Board Ordinance No. 27 of 1941, the Shop and Office Employees' Act No. 19 of 1954, and the Employment of Trainees (Private Sector) Act No. 8 of 1978. Labour/industrial relations are governed by the Trade Unions Ordinance No. 14 of 1935, the Industrial Dispute Act No. 43 of 1950, the Termination of Employment of Workmen (Special Provision) Act No. 45 of 1971, and the Employees' Councils Act No. 32 of 1979. The well-being of employees is governed by the Employment of Women, Young Persons, and Children Act No. 47 of 1956, the Maternity Benefits Ordinance No. 32 of 1939, and the Employment of Females in Mines Ordinance No. 13 of 1937. Occupational safety and health is governed by the Factories Ordinance No. 45 of 1942 and the Workmen's Compensation Ordinance No. 19 of 1934. In addition, Sri Lanka has ratified 41 of the International Labour Organization Conventions, including the eight core conventions on labour standards, including the including the right to collective bargaining and freedom of association. The most recent ratification was of the Employment Policy Convention 1964 (No. 122) in early 2016 and the GoSL has also expressed its willingness to ratify the Occupational Safety and Health Convention 1981 (No. 155).

7.7.1 Industrial Dispute Act No. 43 of 1950

The Act specifies the functions and powers of the Commissioner of Labour in regard to industrial disputes and the powers of the Minister in charge of the subject-matter of labour. The Act also explains the circumstances in which the industrial disputes will be referred for settlement by conciliation, arbitration, or by Industrial Court.

7.7.2 Industrial Disputes (Hearing and Determination of Proceedings - Special Provisions) Act No. 13 of 2013

The Act provides for the expeditious hearing and determination of applications and the references made under the Industrial Disputes Act and the Termination of Employment of Workmen (special Provision) Act No. 45 of 1971.

7.7.3 Trade Unions Ordinance No. 14 of 1935

The Ordinance guides the appointment of the Registrar of Trade Unions and the other staff, the procedure for the registration of trade unions, cancellation of registration, special provisions applicable to Trade Unions of public officers (some categories of public officers are prevented forming Trade Unions), rights and liabilities of Trade Unions, constitution of the Trade Unions, handling of the properties on the Trade Union, application of funds of the Trade Union, governing regulations of the Trade Union and handling offences, and penalties for misuse of money and properties of Trade Unions.

7.7.4 Termination of Employment of Workmen (Special Provision) Act No. 45 of 1971

The Act makes special provision for the termination of services of workers in certain employment by their employers. The Act specifies the regulations for the termination of workers from their scheduled employment, and also specifies the employers who are not covered under the regulations. Computation of compensation due to termination also being guided by this Act. The powers of the Commissioner are also specified in the Act.

7.7.5 Employees' Councils Act No. 32 of 1979

The Act provides for the establishment of Employees' Councils in state organizations and to specify their functions, to provide for employee participation in governing bodies, and to provide for related matters. The Act provides the procedure for the establishment of the Employees' Councils, operational mechanism of the Councils, and their objects and functions.

7.7.6 Wages Board Ordinance No. 27 of 1941

The Ordinance reflects the regulations on the wages and other employment of persons employed in different trades for the establishment and constitution of the wages boards.

7.7.7 Employment of Trainees (Private Sector) Act No. 8 of 1978

The Act provides for employers of workers in the private sector to enter into contracts of training with persons on certain terms and conditions to guarantee the employment for the trainees after the conclusion of the training period of training under the contract. The Act provides for the regulations of contracts of training, allowances payable, hours of work, overtime allowances, medical leave, guarantee of employment, and termination of contract of employment.

7.7.8 Budgetary Relief Allowance for Workers (No.1) Act No. 8 of 1978

The Act provides for the payment of budgetary relief allowances by the employer to workers. The Commissioner of Labour is the Competent Authority for this Act. The Act provides for the regulation of payment of special allowance, special provisions regarding continuation of employment, maintaining a register of such workers, powers of competent authority, failure to pay dues to the workers, and recovery of amounts due to workers.

7.7.9 Budgetary Relief Allowance for Workers Act No. 36 of 2005

The Act provides for the payment of budgetary relief allowances by the employer to certain categories of workers. The Commissioner of Labour is the Competent Authority for the Act. The Act specifies that all the employers will pay Budgetary Relief Allowance to all the workers employed. It provides for the regulation of special provisions regarding continuation of employment, maintaining a register of such workers, powers of competent authority, failure to pay dues to the workers, and recovery of amounts due to workers.

7.7.10 Maternity Benefits Ordinance No. 32 of 1939

The Ordinance provides for the payment of maternity benefits and related matters to women workers. It specifies that women workers should not be employed for four weeks after giving birth, defines the entitlements relating to the period of maternity payment, that maternity benefits should not be claimed from more than one employer, specifies the notice to be given to employers regarding maternity leave, that employment cannot be terminated due to the pregnancy, and the work prohibited during the pregnancy. It also provides for regulations for the liability to pay maternity benefits and the establishment and maintenance of crèches.

7.7.11 Employment of Women, Young Persons, and Children Act No. 47 of 1956

The Act governs the employment of women, young persons, and children. The Act provides that no person under 18 years of age should be employed during the night. It specifies that the female employees can be employed during night subject to certain conditions. Rest periods of trainees at night are specified in the Act. A register of industrial workers under 18 years must be maintained by employers.

7.7.12 Factory Ordinance No. 45 of 1942

The Ordinance provides for regulations for registering, licencing, and approvals for factory buildings, authority of the local councils, notice of suspension, and resumption of the factories.

7.7.13 Workmen's Compensation Ordinance No. 19 of 1934

The Ordinance provides for the payment of compensation to workers who are injured in the course of their employment. Provision is made to pay compensation for any accidents during the course of the employment. It includes the employers' liability to pay compensation for injuries and occupational diseases, the amount of compensation, and the procedure to effect the payments. Disputes with regard to the payment of compensation will be settled by the Commissioner. The agreements for settlement of compensations are to be registered and the commissioner has the right to review such registers to ascertain the implementation. The Commissioner may issue a licence to any person to undertake insurance against liabilities.

7.7.14 Employees' Provident Fund Act No. 15 of 1958

The Act was introduced to establish a provident fund for the benefit of certain classes of employees. The establishment and membership of the Employees' Provident Fund and its administration are dealt with in the Act. The Act also deals with covered employment, normal contributions, interest, imposition of surcharges on employers for failure to make contributions, recovery of contributions, and contribution to reflect in the members' accounts.

7.7.15 Employees' Provident Fund (Special Provisions) Law No. 6 of 1975

The Act provides a uniform scheme of superannuation benefits for all employees in the private sector. The Act specifies that no employee or employer could make any contribution to any fund other than the Employees Provident Fund. The Act also specifies that the employers cannot establish and fund or scheme for the payment of superannuation to employees.

7.7.16 Employees' Trust Fund Act No. 46 of 1980

The Act provides for the establishment of the Employees' Trust Fund. The Act provides for the establishment of the Employees Trust Fund and boards, powers and duties of the boards, and the investment procedure of the funds collected.

7.7.17 Payment of Gratuity Act No. 12 of 1983

The Act provides for the payment of gratuity by employers to their workers for the amendment of the Land Acquisition Act, Land Reform Law, and the Industrial Dispute Act. The Act provides for a gratuity payment by any employer who has employed workers on agriculture land or estate land for a period of not less than five years. The Act includes the employers' liability to pay gratuity, the rate of payment of gratuity, failure to pay gratuity, recovery of gratuity, and forfeiture of gratuity.

7.7.18 Analysis and Relevance to CRes MPA

Contractors and all agencies/authorities that hire workers, as well as the PMU, will have to adhere to the provisions in the Acts set out in the section above.

7.8 Other Laws

7.8.1 Right to Information Act No. 12 of 2016

The Right to Information Act No. 12 of 2016 (RTI) established the principle of 'open government' and citizens' access to information in Sri Lanka, in order to foster a culture of transparency and accountability in public authorities. The Act creates a right of access to information held by a public authority, specifies the grounds on which access may be denied, and creates a Right to Information Commission to hear appeals from refusals to grant access to information and monitor compliance with the Act. The Act requires proactive disclosure of certain information, including bi-annual reports by Ministers detailing, among others, the functions and duties of Ministries and Ministry staff,

procedures that govern the discharge of duties and exercise of power, and details of budgets and expenditure. The Act also establishes a process whereby Ministers are required to inform the general public, and all persons likely to be affected, about the initiation of projects by their Ministries three months prior to their commencement. For urgent projects, the timeframe is one week prior to the commencement of the project, and the reasons for urgency are required to be communicated to the RTI Commission.

7.8.2 Analysis and Relevance to CRes MPA

Mechanisms and procedures for consultations, information disclosure, and the Grievance Redress Mechanism (GRM) will need to adhere to the provisions in the Act.

7.9 Gap Analysis of Legal Framework of LAR 2008 and International Funding Agencies

Item (Aspect)	LAA 2008	NIRP	New Orders made under LAA	World Bank Policies	Policy Followed by PMU/RDA	Gaps Identified LAA vs WB safeguards
Identification of APs through initial baseline survey	Not required	Not mentioned	Not mentioned	Need to identify	PMU will conduct a baseline survey	Baseline survey
Social Assessment	Not Required	Need to identify social impacts and vulnerable groups	Not mentioned	Required	PMU will conduct a social assessment survey	Social assessment
Census	Not required except preparing valuation reports after the issuance of Sec.7 notice under LAA.	Affected assets have to be identified to pay compensation	Not mentioned but all affected assets need to be inventoried to pay compensation	Required	PMU will conduct a census to ascertain the impact on assets	Census
Compensation for lands	At market value.	Replacement cost	Replacement cost(Market Value) ir respective of the extent acquired	Replacement cost	Payment of replacement cost	Replacement Cost

Item (Aspect)	LAA 2008	NIRP	New Orders made under LAA	World Bank Policies	Policy Followed by PMU/RDA	Gaps Identified LAA vs WB safeguards
			from the main parcel of land			
Land for Land Option	If suitable state land available	Replacement of land is an option	Not mentioned	Not mentioned	If suitable state land available and if the AP is willing	Land for land option
Compensation for Paddy Lands	Compensation	Compensation at replacement cost	Value based on development potential where permission had been granted by the Commissioner General of Agrarian Services to fill the land. If not replacement cost	Should be paid the replacement value	As per the 2008 regulations	
Injurious affection and severance	Up to 20 % of the statutory valuation	Should be paid	Should be paid in full	Should be paid	As per the 2008 regulations	
Compensation for structures	Depreciated value(willing buyer	Replacement cost	Replacement cost +difference between cost of construction	Replacement cost	As per the 2009 gazette notification on compensation	Replacement cost without depreciation

Item (Aspect)	LAA 2008	NIRP	New Orders made under LAA	World Bank Policies	Policy Followed by PMU/RDA	Gaps Identified LAA vs WB safeguards
	willing seller concept)		&replacement cost ,if the building is used for occupation or business purposes or is intended to use for such purposes			
Compensation for non-title holders	Compensation allowed only for improvements made on the land	Compensation for improvements and other losses as per the EM	For improvement made on the land for those in occupation prior to the publication of Sec.02 notice under LAA.	No discrimination between title holders and non-title holders	Compensation for structures and other entitlements as per the EM	No discrimination between titled and non-titled APS.
If an acquired building is occupied by a tenant/statutory tenant protected under the	Acquiring Officer will consider the rights of the tenant under the relevant Law	Rights should be respected	Compensation to be ascertained in proportion having regard to the provisions of Rent(Amendment) Act,No.26 of 2006	Rights all affected should be safeguarded	As per the 2008 regulations	

Item (Aspect)	LAA 2008	NIRP	New Orders made under LAA	World Bank Policies	Policy Followed by PMU/RDA	Gaps Identified LAA vs WB safeguards
provisions of Rent Act .No.7 of 1972,						
Compensation for crops and trees	No separate payments included in the land value	Payment for all losses,	Not mentioned	Should be paid for the losses	Compensation will be paid for loss of crops and trees	Compensation for all losses
Entitlement to salvage materials	not entitled	Not specifically mentioned	Not mentioned	Not mentioned	Salvage material will be given to the APs	
Loss of Income	Only for those with documentary evidence	Should be paid with other evidence	Relief available	All losses should be paid	Will be paid for loss of income for those with and without documentary evidence but amount differs	No discrimination between titled and untitled APS.
Other expenses(resettlement assistance)	Not available, except when expenses incurred due to change of residence as a	Not specifically mentioned but policy objectives refer to all costs including transaction costs	Available	All expenses should be paid	Will be paid as per the 2008 regulations	All expenses

Item (Aspect)	LAA 2008	NIRP	New Orders made under LAA	World Bank Policies	Policy Followed by PMU/RDA	Gaps Identified LAA vs WB safeguards
	result of acquisition.					
Livelihood Restoration	Not available(only compensation for loss of income)	Affected people should be assisted to re-establish themselves and improve their quality of life.	Available	All losses should be paid	Income restoration program by the PMU	Lively hood restoration
Grievance Redress Mechanism	Not available	Provided	Not mentioned.	Should be provided	PMU will set up a system to address grievances of APS	GRM
Compensation payable in instalments	Allowed under LAA in 10 equal instalments after initial payment of Rs.25,000.00	Not allowed	Silent	Not allowed, full compensation should be paid before property is taken over.	Will be paid in lump sum	Compensation should be paid prior to take over
Compensation before takeover of assets	Not required	Compensation should be paid before takeover of assets.	Silent	Compensation should be paid before take over	PMU will pay compensation before take over the properties	Taking over prior to payment of compensation

Item (Aspect)	LAA 2008	NIRP	New Orders made under LAA	World Bank Policies	Policy Followed by PMU/RDA	Gaps Identified LAA vs WB safeguards
Requirement of a RAP	Not required	Comprehensive RAP requires if the number of families affected is over 20, if less abbreviated RAP should be prepared.	Not mentioned	If the number of affected people is over 200 ,affection over 10% and relocation comprehensive RAP, if less abbreviated RAP ,if relocation is involved even if the number is less than 200,to expand it with a rehabilitation program	PMU will follow the WB guide lines	Requirement of RAP
Public disclosure	Not required to have public meetings under the LAA but the affected will be informed by Government gazette at different	It is a requirement.	Deals only with compensation	It is a requirement	PMU will follow the NIRP and WB policies. Important sections of the RAP will be translated into Sinhala and Tamil (local Languages) and	Public disclosure

Item (Aspect)	LAA 2008	NIRP	New Orders made under LAA	World Bank Policies	Policy Followed by PMU/RDA	Gaps Identified LAA vs WB safeguards
	stages of the acquisition process and by paper notices at Sec 07 stage and when compensation deposited in a bank on the orders of a Court of law				made available to the public for information. It will be disclosed in the WEB site of the PMU.	
Consultation with stake holders	Not required under LAA	It is a requirement	Deals only with compensation	It is a requirement	PMU will follow the NIRP and WB polices	Consultations
Taking physical possession after publication of Sec 38(a) of the LAA	Provision available under LAA, interest should be paid till the settlement of compensation fully. The rate of interest to be paid will be decided by the Secretary to the Treasury by a	Not allowed without paying full compensation at replacement cost and reasonable notice	Not mentioned	Does not allow	PMU Possession will not be taken without payment of compensation.	Taking over under Sec 38(a) of LAA.

Item (Aspect)	LAA 2008	NIRP	New Orders made under LAA	World Bank Policies	Policy Followed by PMU/RDA	Gaps Identified LAA vs WB safeguards
	gazette notification .At present the rate of interest is 7% per annum.					
Assistance for vulnerable people	LAA is silent on this aspect	NIRP requires special treatment for them	Vulnerable payment available under Sec.3.11 of the 2008 regulations	WB policy require special assistance for vulnerable people	Provided in the RAP to comply with NIRP and WB	Assistance to vulnerable people
Legal Remedy against the decision of the acquiring officer on award of compensation	Appeal to the Land Acquisition Review Board (LARB) within 21 days of the award under Sec.17 of LAA.	GRC	New compensation package ensures a reasonable solution	Affected should not suffer losses and impoverished as a result of the project	PMU will assist the affected people to resolve the issues on compensation	
Cutoff Date	Date of Sec.02 notice under LAA	Not specifically mentioned	Not mentioned	Cut-off date should be mentioned	PMU will notify the APs both titled and untitled the cut off dates	Cut-off date

Item (Aspect)	LAA 2008	NIRP	New Orders made under LAA	World Bank Policies	Policy Followed by PMU/RDA	Gaps Identified LAA vs WB safeguards
Additional Payment for Displacement of a house or investment property	Not available	No mention	Additional 10% payment based on market value	No mention	PMU will comply with the regulations of 2008	

(Source: Land Acquisition Act as amended, NIRP, Government Gazette No 1596/12 dated 07th April 2009, World Bank -safe guard policy document.)

* New orders made under the LAA by Minister of Land and land Development on 17.03 2009 and made effective by Government Gazette No.1596/12dated 07th April 2009

7.10 Gap Analysis of Legal Framework of LAR 2013 and International Funding Agencies

Item (Aspect)	LAA 2013	NIRP	New Orders *	World Bank Policies	Policy Followed by PMU/RDA
Compensation for lands	Willing buyer, willing seller concept at market value.	Replacement cost	Replacement cost	Replacement cost	Payment of replacement cost
Compensation for structures	Depreciated value	Replacement cost	Replacement cost difference between cost of construction & replacement cost	Replacement cost	As per the 2009 gazette notification on compensation
Compensation for non-title holders	Compensation allowed only for improvements made on the land	Compensation for improvements and other losses as per the EM	For improvement made on the land for those in occupation prior to the publication of Section 02 notice under LAA.	No discrimination between title holders and non-title holders	Compensation for structures and other entitlements as per the EM
Compensation for crops and trees	No separate payments included in the land value	Payment for all losses, not specifically mentioned	Not mentioned	Should be paid for the losses	Compensation will be paid for loss of crops and trees
Entitlement to salvage materials	Not entitled	Not specifically mentioned	Not mentioned	Not mentioned	Salvage material will be given to the APs

Item (Aspect)	LAA 2013	NIRP	New Orders *	World Bank Policies	Policy Followed by PMU/RDA
Loss of Income	Only for those with documentary evidence	Should be paid with other evidence	Relief available	All losses should be paid	Will be paid for loss of income for those with and without documentary evidence but amount differs
Other expenses	Not available, except when expenses incurred due to change of residence as a result of acquisition.	Not specifically mentioned	Available	All expenses should be paid	Will be paid
Livelihood Restoration	Not available	Affected people will be assisted to re-establish themselves and improve their quality of life.	Available	All losses should be paid	Income restoration programme by the PMU
Grievance Redress Mechanism	Not available	Provided	LARC and Super LARC for grievances regarding compensation.	Should be provided	PMU will set up a system to address grievances
Compensation payable in instalments	Allowed under LAA in 10 equal instalments after initial payment of Rs.25,000.00	Not allowed	Silent	Not allowed, full compensation should be paid before property is taken over.	Will be paid in lump sum

Item (Aspect)	LAA 2013	NIRP	New Orders *	World Bank Policies	Policy Followed by PMU/RDA
Requirement of a RAP	Not required	Comprehensive RAP requires if the number of families affected is over 20, if less abbreviated RAP should be prepared.	Not mentioned	If the number of affected people is over 200, affection over 10% and relocation comprehensive RAP, if less abbreviated RAP, if relocation is involved even if the number is less than 200, to expand it with a rehabilitation programme.	PMU will follow the WB guide lines
Public disclosure	Not required to have public meetings under the LAA but the affected will be informed by Government gazette at different stages of the acquisition process and by paper notices at Sec 07 stage and when compensation deposited in a bank on the orders of a Court of law	It is a requirement. .	Deals only with compensation	It is a requirement	PMU will follow the NIRP and WB policies. RAP will be translated into Sinhala and Tamil (local Languages) and made available to the public for information. It will be disclosed in the web site of the PMU.
Taking physical possession after publication of	Provision available under LAA, interest at 7% per	Not allowed without paying full compensation at	Not mentioned	Does not allow	PMU Possession will not be taken without

Item (Aspect)	LAA 2013	NIRP	New Orders *	World Bank Policies	Policy Followed by PMU/RDA
Section 38 (a) of the LAA	annum available till the compensation is fully settled	replacement cost and reasonable notice			payment of compensation.
Assistance for vulnerable people	LAA is silent on this aspect	NIRP requires special treatment for them	Vulnerable payment available	WB policy require special assistance for vulnerable groups	Provided in the RAP to comply with NIRP and WB

(Source: Land Acquisition Act as amended, NIRP, Government Gazette No 1596/12 dated 07th April 2009, World Bank -safe guard policy document.)

7.11 Recommendations and Proposals to Amend the Land Acquisition Act 1950

7.11.1 Proposals to Shorten the Acquisition Timeframe

7.11.1.1 Preliminary Plans (PPs)

After the publication of the section 2 notice under the LAA, and where the owner of the land has expressed willingness in writing, it is possible to prepare the PP without taking further time to prepare an Advanced Tracing (AT). Alternatively, if additional information is required after an AT is prepared, the Surveyor-General could direct that the AT be converted into a PP, without the need for repeating a ground survey. This method was adopted in preparation of the PPs for the Kandy – Mahiyangana and Badulla –Nuwara Eliya road improvements projects of the RDA. This will help to avoid additional surveys and longer durations of time.

7.11.1.2 Section 5 notice by the Ministry of Lands

Section 5(1) of the LAA requires the Divisional Secretary to prepare the written order to be gazetted by the Minister of Lands in all three languages. As translation facilities in the Divisional Secretariats are limited, but they are available in the Ministry of Lands, a more efficient process would be for the Ministry to undertake the translation and forward the gazettes to the Divisional Secretaries for publication.

7.11.1.3 Section 38(a) declaration only

Under section 41(a), prior to the section 38(a) declaration, if a declaration under section 5 has not been made, such a declaration should be made after the section 38(a) declaration. The purpose of the section 38(a) declaration is to takeover the possession of land on behalf of the government. Once the takeover of land has occurred, there is no need for a further declaration (under section 5).

7.11.2 Proposals to Benefit the Public

7.11.2.1 Intended purpose for acquiring land

The current format of the statutory notices does not allow for the inclusion of the actual purpose intended by acquiring the land. The generic “for public purpose” description does not provide sufficient information to the public, and the public has a right to know the purpose for which land is acquired. Consequently, the Court of Appeal has, at times, set aside acquisition notices. The notice ought to specify the purpose for which land is acquired. This will enable the public to be informed and to raise objections if the land is used for a purpose other than stated on the notice.

7.11.2.2 Provision to obtain an advance

Under section 22(1), if compensation awarded under section 17 has been fully or partially accepted, prior to making an appeal or the decision of the Land Acquisition Review Board (LARB), an appeal to the LARB should be rejected. There have been instances where appeals have been rejected due to the acceptance of an advance, prior to the compensation award under section 17. As the purpose of the appeal is to increase, not reduce, the compensation amount, it is reasonable that, without prejudice to the appeal process, an advance can be obtained by the affected person (for example, if they need to purchase alternate land/buildings/structures). An affected person should be able to obtain an advance without detrimentally affecting their right to appeal the compensation amount under section 17.

7.11.2.3 Compensation without instalments

Under section 29, compensation is payable in 10 instalments. Affected persons ought to receive compensation from the government without delay, without having to wait for multiple instalments. Further, compensation by treasury bills is also unreasonable for affected persons.

7.11.2.4 Vesting, divesting, and revoking orders in all three languages

Section 38(a) orders, revoking orders under section 39(1), and divesting orders under section 39(c)(i) should be in all three languages. Currently, as the LAA contains no language requirement, the orders are gazetted only in Sinhala.

7.11.2.5 Acquired land not being used for the intended purpose

If land acquired under section 38(a) is not used for the intended purpose within a prescribed period (e.g. one year), the LAA should provide provisions to annul the acquisition by way of court order. The purpose of this would be to discourage the acquisition of private properties without a clear purpose, plan, and monetary provisions. The affected person should be able to claim damages for the period he/she did not own the land. If compensation has been paid out during this period, it should be returned to the government.

7.11.2.6 Compensation for minors and persons of unsound mind

Under section 32, a compensation amount exceeding Rs 100 payable to a minor or person of unsound mind should be deposited with the court with relevant jurisdiction. The amount should be increased to Rs 10,000.

7.11.2.7 Compensation to deceased persons

Under section 33, if a person entitled to compensation is deceased, the amount is to be deposited in the court with relevant jurisdiction. If no testamentary proceedings are pending, the LAA should provide for the acquisition officer to inquire into the heirs of the deceased so as to be able to distribute the compensation.

7.11.3 Proposals to Minimise Fraudulent Activity and Other Problems

7.11.3.1 Register land acquired for the government

Land vested with the government under sections 38(a) or 38(b) should be included in regulations to the LAA, in order to avoid illegal transfers or transactions. It should also be registered with the land registry. If any land has been dealt with under sections 39(1) or 39(a)(1) after registering with the land registry, those actions should also be registered with the land registry.

7.11.3.2 Alterations to land after publication of sections 2 and 4 notices

Under section 4, after the publication of a notice under sections 2 or 4, the transfer of land or any activity reducing the value of land should not be carried out for 12 months. However, actions that would appreciate the value of land is not prohibited by the LAA. Given this gap, people can construct structures or improve the value of land. The LAA should contain a provision that prevents improvements without the written approval of the acquiring officer.

7.11.3.3 Interest period

Under section 35, interest should be calculated from the date of the section 38(a) order being issued to the date of the payment of compensation. To avoid delays in handing over possession of land, the LAA should provide that interest will be paid from the date of the physical possession of land.

7.11.4 Other Proposals

7.11.4.1 Dividing land subject to section 38(a) order

The LAA does not make provision for land to be acquired to be divided; where portions of the land are subject to the LAA and acquired and portions are not. The current remedy (under section 39) is to revoke the section 38(a) order, resulting in revocation of all land that is covered by the order. Court of Appeal decisions exist that deal with this situation. The LAA should provide for part of land to be acquired to be left out without having to revoke the entire section 38(a) order.

7.11.4.2 Legal provisions to pay advances

The LAA should provide for advances to be payable where a decision is taken to pay an advance prior to the determination of ownership under section 10 (after a proper inquiry based on an interim temporary valuation by the Valuation Department has been made). In the absence of a statutory provision permitting the acquiring officer to do so, he/she is unlikely to risk paying an advance pending the completion of the title determination inquiry.

7.11.4.3 Possession of a land where owner is not resident

The LAA should provide for acquiring officers to proceed with obtaining possession of land where the owner of the land is not resident or where details about the owner cannot be obtained. Section 41 of the LAA should contain a provision to reflect this scenario.

7.11.4.4 Section 17 order

After a section 17 order, the LAA does not contain a provision for the acquiring officer to change his/her decision if a mistake is discovered at a later point. There should be provision to enable the order to be amended or cancelled and a new order issued.

7.11.5 Interventions by PMU to minimize delays

7.11.5.1 Minimizing delays in surveying

Currently, a surveyor is expected to survey only 20 lots of land per day. Delays occur where large numbers of plots need to be surveyed, and more surveyors are required. To minimize delays, the following measures are proposed:

- An incentive to be paid to the surveyors. Currently, the amount is Rs 2,000 per plot;
- Logistical support, such as transport;
- If a long stay is required, surveyors should be provided accommodation;
- Increase the cadre of surveyors;
- Consider outsourcing the surveys, under the supervision of the Surveyor-General.

7.11.5.2 Minimizing delays in valuation

The norms for valuation officers are based on a marks awarding system, done by the Chief Valuer. The awarding of marks depends on the nature and magnitude of the valuation undertaken. Incentives should be given to valuation officers, similar to the amounts payable to surveyors. To minimize delays, the following measures are proposed:

- Valuation officers should be provided with transport and lodging when required;
- The cadre of valuation officers should be increased. Currently the cadre is 360 valuation officers. The Chief Valuer has request the Ministry of Finance to increase the cadre by another 200 valuation officers. This is necessary as there are complaints by affected people regarding delays in receiving valuations.

7.11.5.3 Expedite title determination inquiries

The PMU should assist affected persons to obtain the documents required for the section 9 title determination inquiry and assist in preparing the claim form, in order to expedite the process.

For example, the PMU should assist affected persons to obtain registration extracts from the land registry. The PMU could arrange for the land registry to issue extracts to a group of affected persons on a particular day. On that day, the social unit of the PMU could assist those persons to fill the application forms and file them in the morning and collect the extracts later in the same day. This would avoid delays and ease the burden on affected persons. A similar arrangement was successfully implemented during the Kandy – Mahiyanganaya road improvement project of the RDA.

The PMU could obtain the services of acquiring officers authorized by the Ministry of Land and Land Development to conduct section 9 inquiries and assist the acquiring officers (Divisional Secretaries) to expedite the acquisition process.

The state institutions that need land for their development projects could establish land acquisition units in the in their institutions to acquire land through authorized acquiring officers. Such units currently exist at the UDA, SLRDC, and Mahaweli Authority of Sri Lanka. For example, the Mahaweli Authority has a separate land division, with separate valuation and survey units, in order to implement the large-scale land acquisition and resettlement programmes that they undertake.

Monetary incentives should be provided to the Divisional Secretaries to be distributed to the relevant officers. For example, where information (notices, copies of gazettes) are required by Grama Niladharis, they should be provided a payment.

7.11.6 Recommendations for Institutional Strategic Influences

The legal framework under the Project largely revolves around the administration of the LAA, and the roles of the Department of Irrigation, Agrarian Development Department, and the local government institutions. The strategic impacts on Divisional Secretaries in implementing the LAA, as proposed by the consultants, will result in additional funds being available for logistics and the payment of extra allowances for the staff involved in land acquisition process. The same impacts will be experienced by the Department of Survey and the Valuation Department. Adopting the recommendations presented for acceleration of land acquisition will allow the Department of Irrigation to commence construction of project activities much earlier and at a lower cost, as delays in commencing construction activities will elevate the costs due to currency depreciation and cost increases in construction materials and services.

The Department of Irrigation and Agrarian Development will be able to maintain canal systems without frequent repairs, resulting in savings in the maintenance budget. It will also allow these agencies to achieve higher productivity through the efficient use of resources without unnecessary criticisms from farmers and other stakeholders.

Recommendations to amend the LAA and proposals to avoid delays in acquiring land contribute more to the GDP of the country, as the planned project will have early outcomes.

7.11.7 National Institutional Framework

The Ministry of Land and Parliamentary Reforms is the key government entity responsible for land acquisition and for administering the NIRP. Activities related to land acquisition and involuntary resettlement are carried out in collaboration with a wide network of public and civil society organizations, which include the project implementing agencies and their relevant ministries, the Government Printer, the Valuation Department, the Survey Department, and Divisional Secretariats.

Some of the government institutes involved in development projects within the areas of the Kelani river basin, especially the river reaches considered under Stage 1 of the project, particularly the RDA, MM&WD, UDA and NWSDB have their own land acquisition and resettlement divisions or units.

Given the nature of the interventions under Stages 1 and 2, it is important that the PMU established under the MIWRDM, includes a unit responsible for land acquisition and resettlement activities. The PMU should also be supported with a dedicated Management Information System (MIS) for land acquisition and resettlement. These units have to be adequately staffed, preferably with experienced as well as new staff, who will be responsible for co-ordination with the relevant ministries and affected parties, and who will manage the day-to-day activities related to land acquisition and resettlement.

The implementation arrangements for each stage of the project should be designed with two main objectives in mind with respect to social safeguards: (1) to ensure the accountability of the project implementation authorities and service providers, as well as any civil society and private organizations partnering in project implementation, in regard to the delivery of social safeguards and resettlement entitlements; and (2) to ensure the required capacity in terms of organizational arrangements, systems and procedures, as well as knowledge, skills, and attitudes for efficient and effective project delivery.

A Social and Resettlement Unit (SRU) should be established within the PMU, and should be headed by a Deputy Director (DD) for Social Safeguards and Resettlement. A Senior Land Acquisition Officer should be appointed under the DD who will be assisted by Land Officers. A set of resettlement and social safeguards officers and community mobilization officers should also be appointed. A Database Officer should be appointed to manage the MIS.

The land acquisition and resettlement activities should be supported by a MIS, which will require a large database on the affected lands, houses, households, and businesses, starting from the information generated by the socio-economic census and surveys carried out at the start of each phase of the project. This information must be securely stored and managed in a systematic manner, allowing lists and consolidated reports on the progress of land acquisition and resettlement to be generated as and when required. The MIS will also be used to manage information on the Grievance Resolution Mechanisms (GRM).

7.11.8 Institutional Capacity Enhancement Mechanisms

The land acquisition and resettlement staff of the PMU will require some additional training and capacity enhancement. The project should incorporate a series of awareness and training workshops and programmes, as well as visits to and workshops with resettlement and social safeguards specialists

working in other projects that require land acquisition and resettlement. The following themes should be considered as training and capacity enhancement:

- Focused workshops to gain experience from other projects;
- Attending workshops and awareness training programmes organized by international funding agencies;
- Training on social safeguards, including post-resettlement programmes and income restoration.

7.11.9 The National Project Steering Committee

A National Project Steering Committee (NPSC) for the project has been established. It is recommended that the NPSC include the following officers/agencies or their authorized representatives:

- The Secretary of MIWRDM;
- The Chief Secretaries from the relevant Provincial Councils;
- The Additional Secretary (Urban Development), MMWD;
- The Additional Secretary (Local Government and Provincial Council), Ministry of Local Government & Provincial Council;
- The Director-General, Department of External Resources;
- The Director-General of the Roads Development Authority;
- The Director-General of the UDA;
- The Director-General, Coast Conservation and Coastal Resource Management Department;
- The General Manager, NWS&DB;
- The Director General, Central Environment Authority;
- The Municipal Commissioners of relevant Municipal Councils;
- The Project Director of PMU at MIWRDM

The NPSC should be convened bi-annually to i) monitor the overall implementation of ongoing sub-projects, based on progress reports; ii) resolve problems of implementation, and iii) to co-ordinate with other national government agencies connected to project implementation.

8. MITIGATION MEASURES AND RECOMMENDATIONS

This SSA discusses baseline socio-economic conditions, and analyses the social impacts due to the prevailing conditions and due to the proposed interventions under the CRes MPA in the selected areas of Kelani River Basin. The assessment also analyses the vulnerability of various groups identified in the project interventions areas and discusses how these vulnerabilities affects the population. A gender analysis and stakeholder analysis have also been conducted under the assessment. The document also presents an analysis of existing laws and policies of the country which are relevant to the proposed interventions, and establishes a link between different stakeholder agencies related to the interventions.

As the final section of this document, this chapter discuss measures that should be applied or adopted in the proposed interventions to avoid, minimize, or mitigate social impacts that would occur due to the proposed interventions and to enhance the benefits. The mitigation measures and recommendations are presented under the following themes, which are directly and indirectly linked with social safeguards of the affected communities in the proposed project intervention areas:

- Measures and recommendations in stakeholder engagement;
- Measures and recommendations towards the development of a RPF and RPs;
- Measures and recommendations towards the development of a SMF;
- Other measures and recommendations.

8.1 Recommendations in Stakeholder Engagement

As indicated under Chapter 2, there are other development projects either implemented or to be implemented within the same localities, especially where the flood defence measures are to be implemented. An efficient consolidation and integration of such activities will be required for a smooth and uninterrupted implementation of proposed interventions under this project. This consolidation and integration is crucial mainly to:

- Create awareness of the projects among the stakeholder organizations within the basin area, including the respective Divisional Secretaries and their staff;
- Gaining economies of scales of project implementation by different types of stakeholders, by avoiding the duplication of work. For example, the RDA and the NWS&DB should discuss the laying of new water lines along the road corridors. The PMU, together with the RDA and the NWS&DB, should consider developing an integrated approach for land acquisition if it required;
- Co-ordinating with the MMWD in relocating affected persons along the river embankment who are eligible under the “Urban Regeneration Programme” and on rehabilitation and improvement works at the outfall of canals that drain into the Kelani river.

In addition, the PMU should co-ordinate with the Central Environmental Authority, the Department of Archaeology, the Geological Survey and Mines Bureau, the National Buildings Research Organization, the UDA, the Forest Department, the Department of Wild Life Conservation, the Land Commissioner's Department, the District Disaster Management Centre, the RDA, the Survey Department, Local Authorities, District Secretariats, and Divisional Secretariats of the project intervention areas. Such co-ordination could be done through Project Steering Committee meetings.

All stakeholder organizations should participate in the Project Steering Committee meetings so that any inconveniences to communities on utility service deliveries and public infrastructure issues can be settled immediately. This approach will help to reduce adverse impacts to communities living in the project area and provide an avenue to collecting reliable information from impacted communities.

8.2 Recommendations Towards Development of RPF and RPs

The following recommendations should be included in the RPF and subsequent Resettlement Plans (RPs) developed for the proposed project interventions.

8.2.1 Resettlement and Relocation

In view of the large scale developmental projects being undertaken within Sri Lanka with funding from different agencies, the resettlement actions should be planned and undertaken on a consistent basis, without discrimination and differentiation within the same project at different locations or even across different projects. Using a consistent basis or equitable resettlement actions right across the country will allow the population to be more open towards developmental projects. Resettlement formats currently being implemented by different donor agencies or implementing agencies have invariably seen certain discriminations to affected parties, causing huge protests for project implementation. Recently, this was observed in most of the developmental projects and issues, such as land acquisition problems, non-payment of compensation, delays in the payment of compensation, and issues in livelihood, emerged.

Resettlement activities should be seriously addressed in all projects in a unique and consistent standard format to avoid negative scenarios, such as those identified below, and for the acceptance of resettlement measures by the affected parties:

- **Loss of livelihood:** Developing livelihood support/restoration plans based on the information collected from the socio-economic surveys of the affected population and implementing the plans. The PMU should have provision to continue and monitor the post-project development of those who participated in these programmes for a reasonable period of time;
- **Lack of facilities:** The socio-economic surveys of the project intervention areas should collect and assess the existing infrastructure facilities. These facilities should be provided to all resettlement sites (if) developed by the PMU. Or, sufficient amounts of compensation should be provided for all displaced persons/households through integrating such expenses in to the resettlement cost. The PMU should have provision to monitor the establishment of such facilities or whether affected persons were provided with adequate compensation;

- **Meagre compensation:** Compensation for all losses should be calculated and paid to the affected persons/household without any undue delay and before any physical displacement takes place. The PMU should co-ordinate with the relevant Divisional Secretaries, who will be the acquiring officers for the particular area where acquisition of land shall take place. The PMU should also monitor the progress of the payment of compensation and assist the affected persons in any possible way to obtain their due compensation without delays;
- **Secondary displacement:** Occupational/crafts people/skilled groups residing in the inundation areas, who depend on the host area for similar livelihoods, also experience unemployment. Village artisans, petty traders, laborers etc., lose their living in almost every development. The PMU should have provision to introduce new livelihoods to the secondary displaced persons or have provision of a mechanism to continue the existing livelihoods;
- **Poverty increases:** The resettlement plans developed should identify the specific vulnerable population within the project area and develop programmes to reduce any chances of impoverishment due to proposed project interventions. The RAPs should clearly identify those vulnerable groups, and facilitate the groups having access to support from governmental poverty alleviation programmes.

8.2.2 Land Acquisition

One of the key reasons for delays in the payment of compensation for land acquisition is the inability of the occupant of a land/property to prove their ownership. The PMU should assist project affected persons to clarify any ownership issues. The PMU should also co-ordinate with the respective Divisional Secretariats, the Land Ministry, any other line agencies for the affected persons to prove the land ownership of the land identified for acquisition. To avoid any duplication of land acquisition from a same land lot, the “Bin Saviya” programme or conducting “Land Kachcheris” can assist.

8.2.3 Identification of Existing Livelihood Patterns

Traditionally, the Kelani River Basin has experienced agriculture based rural lifestyles developed from ancient times. This lifestyle is seen in the upstream areas of the basin. The resettlement plan and format must focus on finding communities the same or similar kinds of livelihood patterns. This must be taken into significant consideration as the majority of the communities in the basin area are unable to change their livelihood patterns, or do not have skills to switch to a different occupation. If necessary, the occupations of the younger generation can be changed to something new, but this will not be feasible for the elderly population, as they are fixed in the way of life that they are used to. Introducing vocational training or other specific training for the new occupations should also be a part of livelihood and income regeneration plans. There are number of government sponsored Vocational Training Institutions along the Kelani River Basin, under the purview of the Ministry of Skills Development and Vocational Training, who can guide skills development and conduct trainings as per the skills requirement.

8.3 Recommendations Towards the Development of a SMF

The SMF of the Cres MPA should include the ways and means of avoiding, minimizing, or mitigating social impacts that would occur due to proposed interventions.

8.3.1 Reduce Stress of Project Interventions

As indicated in Chapter 4, the PMU should co-ordinate agencies and affected communities, and encourage them to participate in community friendly activities, such as Death Donation and Welfare Societies, establishing Community Based Organizations, and Sports and Youth Clubs. The PMU should take a lead role in co-ordinating the affected communities with agencies, such as Ministry of Sports, Ministry of Cultural Affairs, various religious organizations, and other organizations that would provide micro-finance facilities and vocational training. These recommendations should be part of the RPF and SMF developed for the project. The Social Team of the PMU should conduct comprehensive awareness programmes of such facilities to show the government support towards the communities.

8.3.2 Provide Ongoing Support

The PMU should constantly monitor the post-settlement and development of displaced persons and communities as part of the SMF. The PMU should assist and guide affected persons who face difficulties during post-resettlement to relevant agencies or resource persons to help them in re-establishing their life standards.

8.3.3 Access to Healthcare

The PMU should make arrangements for displaced communities to have access to proper health care facilities. Supplementary budgetary provisions should be assigned by the PMU to address such health issues which would arise especially during the transitional period of affected persons.

8.3.4 Counselling Services

The PMU should provide counselling assistance to displaced persons as part of their resettlement programme. Such activities should be part of the SMF and the progress of such programmes should be monitored by the PMU.

The break-up of families and communities is an important social issue resulting from displacement. Women usually suffer the most as they are deprived of the mutual relationship they have with the community families. The PMU should provide assistance through reputed organizations to any such family that needs counselling assistance, psychotherapy programs, mediation programs or religious interventions.

8.4 Other Recommendations

8.4.1 Transparent Information Dissemination

A communication strategy should be developed to disseminate the ultimate benefits to be derived from the proposed project interventions without any exaggeration. Flood and drought mitigations will likely lead to favourable government budget relief on transport, utilities, and public infrastructure and flood damages.

Providing the public with transparent information relating to the CRes MPA, will lead to a more favourable rapport with the communities. The idea of the local level productivity improvements should be disseminated through the communication strategy, so that communities will be in support for developmental interventions in the basin area.

8.4.2 Enhanced Production of the Local Communities

The CRes MPA should focus on livelihood improvements, and the ultimate result should be the improvement of productivity through better income generation. The flood and drought mitigation will result in a reduction of disaster damages and also provide better living standards expected by communities through improvement of their lifestyles. A separate dissemination approach should be included in the communication strategy, so that the communities can foresee a better future in their livelihoods.

8.4.3 Minimise Disruption of Economic Activities in the Project Area

To resolve social unrest and disruptions to current livelihoods, it is essential to ensure that ongoing livelihood activities in the basin area are not disrupted unless it is essential for the implementation of project activities. Plans should be developed to continue current economic activities to avoid repercussions to livelihoods. There are possibilities that the current economic activities will decelerate due to project interventions and may require additional resources for continuation of the ongoing activities. This will reduce the social mitigation costs by way of subsidies and public assistance to be incurred by the government in the basin area. The services of the Divisional Secretariat and the Department of Social Development will be the core institutions for this task.

8.4.4 Empowerment of Women

The basin area is marginally dominated by women, but majority of the female population is economically inactive. However, with proper education and awareness, their position can be improved and they can be empowered to participate in community activities. The CRes MPA programme should also give focus to the empowerment of women by offering income generation activities and opportunities in decision-making processes. The establishment of women's organizations through NGOs will provide opportunities to empower women. Women's empowerment should include the introduction of women-related livelihoods, offering for income generation activities through self-employment initiative, empowerment in village level community organizations, and leadership in local politics.

8.4.5 Empowerment of Vulnerable Groups

Vulnerable populations, including patients, racial or ethnic minorities, children, elderly, the socio-economically disadvantaged, the underinsured, or those with certain medical conditions is a common feature in the Kelani basin area. This vulnerability status is further triggered by poverty levels, with different backgrounds in education, income levels, culture, and living standards. These vulnerabilities could be addressed by improving income generation activities, compulsory education, employment creation, providing healthcare and mental care, providing nutrition for women and children through the Health Department, eradication of HIV and non-communicable diseases, and abiding by the Disabilities Act. Since vulnerability and poverty are linked, the government support through the Department of Social Services should be introduced in the basin area.

8.4.6 Alignment of the SSA with the RPF and SMF

The SSA is required to align with the RPF and SMF for the CRes MPA. As such, it is vital to reflect the similar social impacts, mitigation measures, and socio-economic environment in the SMF and RPF, with a view to having consistent approaches to social issues on land related and non-land related matters.

Annex 1

Divisional Secretariat Division Data on Socio-economic Profile

Table 1: Total extent in impacted area

District	DS Division	Total Area(ha)	Area Inside the basin(ha)	% of area inside the Basin
Colombo	Colombo	1,785.38	1,015.82	56.90%
Colombo	Kolonnawa	2,603.88	2,603.88	100.00%
Colombo	Kaduwela	8,775.36	8,773.68	99.98%
Colombo	Homagama	11,903.34	5,056.72	42.48%
Colombo	Hanwella	14,588.24	14,588.24	100.00%
Colombo	Padukka	10,496.42	8,548.33	81.44%
Colombo	Maharagama	3,735.30	2,294.47	61.43%
Colombo	Jayawardanapura	1,651.50	1,429.01	86.53%
Colombo	Thimbirigasyaya	2,237.54	1,538.48	68.76%
Colombo	Dehiwala	839.92	5.35	0.64%
Colombo	Kesbewa	6,144.64	0.08	0.00%
Subtotal for Colombo District		67,996.76	45,854.07	67.44%
Gampaha	Wattala	5,769.11	1,606.45	27.85%
Gampaha	Ja-Ela	6,142.02	640.94	10.44%
Gampaha	Gampaha	9,069.58	313.56	3.46%
Gampaha	Attanagalla	15,430.55	675.43	4.38%
Gampaha	Dompe	18,215.84	17,382.60	95.43%
Gampaha	Mahara	9,429.87	4,646.81	49.28%
Gampaha	Kelaniya	2,193.13	2,193.13	100.00%
Gampaha	Biyagama	6,026.68	6,026.68	100.00%
Subtotal for Gampaha District		141,847.28	33,485.59	23.61%
Kalutara	Horana	11,277.94	1,129.30	10.01%
Kalutara	Ingiriya	9,404.98	15.25	0.16%
Subtotal for Kalutara District		164,644.77	1,144.55	0.70%
Kandy	Ganga Ihala Korale	8,891.78	252.84	2.84%
Kandy	Pasbage Korale	12,190.41	137.36	1.13%
Subtotal for Kandy District		192,402.38	390.20	0.20%
Nuwara Eliya	Nuwara Eliya	48,357.10	252.64	0.52%
Nuwara Eliya	Ambagamuwa	48,791.00	42,888.69	87.90%
Subtotal for Nuwara Eliya District		174,534.77	43,141.33	24.72%
Rathnapura	Eheliyagoda	14,192.91	5,600.72	39.46%
Rathnapura	Kuruwita	17,467.32	1,266.43	7.25%
Rathnapura	Rathnapura	32,678.90	110.87	0.34%
Rathnapura	Imbulpe	25,526.41	168.66	0.66%

District	DS Division	Total Area(ha)	Area Inside the basin(ha)	% of area inside the Basin
Subtotal for Ratnapura District		328,877.54	7,146.69	2.17%
Kegalle	Aranayaka	12,441.88	3,305.56	26.57%
Kegalle	Kegalle	10,905.89	5,423.06	49.73%
Kegalle	Galigamuwa	12,750.39	7,205.73	56.51%
Kegalle	Warakapola	19,551.98	5,445.71	27.85%
Kegalle	Ruwanwella	13,861.64	9,959.44	71.85%
Kegalle	Bulathkohupitiya	12,724.69	12,718.52	99.95%
Kegalle	Yatyanthota	17,807.47	17,793.26	99.92%
Kegalle	Dehiovita	19,323.94	19,176.39	99.24%
Kegalle	Deraniyagala	22,208.04	21,820.65	98.26%
Subtotal for Kegalle District		166,099.25	102,848.32	61.92%
Overall total for the basin		1,236,402.75	234,010.74	18.93%

Table 2: Impacted Grama Niladhari Divisions

District	DS Division	GN Division Name	GN Division Code	Total Land Area of the impacted GND (Ha)	Land Area of the impacted GND Inside the basin (ha)	% of Land Area of the impacted GND inside the Basin
Colombo	Colombo	Madmpitiya	C19	33.34	33.34	100.00%
		Mahawatta	C20	53.07	53.07	100.00%
		Mattakkuliya	C26	208.14	188.86	90.74%
		DS Total		1785.38	275.27	15.42%
Hanwella	Hanwella	Akaravita	434	168.79	168.79	100.00%
		Bollathawa	433	256.49	256.49	100.00%
		Eswatta North	429	524.46	524.46	100.00%
		Gira Imbula	435A	97.43	97.43	100.00%
		Hanwella Town	443B	143.49	143.49	100.00%
		Ihala Hanwella North	443	158.92	158.92	100.00%
		Kahatapitiya	435	110.32	110.32	100.00%
		Kalu Aggala	436	544.49	544.49	100.00%
		Kanampella West	425A	128.10	128.10	100.00%
		Kiriwandala North	431B	679.82	679.82	100.00%
		Kudagama	432A	165.35	165.35	100.00%
		Muruthagama	426A	64.80	64.80	100.00%
		Pahala Hanwella	445	157.13	157.13	100.00%
		Suduwella	436A	297.69	297.69	100.00%
				DS Total		14588.24
Homagama	Homagama	Atigala East	446	289.27	289.27	100.00%

District	DS Division	GN Division Name	GN Division Code	Total Land Area of the impacted GND (Ha)	Land Area of the impacted GND Inside the basin (ha)	% of Land Area of the impacted GND inside the Basin
		Hempita	451	82.45	82.45	100.00%
		Jalthara	449	428.10	428.10	100.00%
		DS Total		11903.34	799.83	6.72%
	Kaduwela	Hewagama	474	108.00	108.00	100.00%
		Ihala Bomiriya	471	150.54	150.54	100.00%
		Kaduwela	473A	170.75	170.75	100.00%
		Nawagamuwa	470	250.69	250.69	100.00%
		Pahala Bomiriya	472A	224.15	224.15	100.00%
		Raggahawatta	474A	139.35	139.35	100.00%
		Ranala	469	317.44	317.44	100.00%
		Wekewatta	471A	138.00	138.00	100.00%
		Welivita	475	200.83	200.83	100.00%
		DS Total		8775.36	1699.75	19.37%
	Kolonnawa	Ambathale	501A	95.52	95.52	100.00%
		Halmulla	509C	46.03	46.03	100.00%
		Kelanimulla	504	123.30	123.30	100.00%
		Kittampahuwa	508	60.91	60.91	100.00%
		Kuda Buthgamuwa	506A	67.55	67.55	100.00%
		Maha Buthgamuwa B	506C	53.86	53.86	100.00%
		Mulleriyawa North	501	136.67	136.67	100.00%
		Sedawatta	509A	64.38	64.38	100.00%
		Wennawatta	507	58.95	58.95	100.00%
		DS Total		2603.88	707.16	27.16%
	Colombo District Total			67996.76	6979.29	10.26%
Gampaha	Biyagama	Biyagama East	280B	118.85	118.85	100.00%
		Biyagama South	280/C	170.57	170.57	100.00%
		Bollegala	278A	133.80	133.80	100.00%
		Gonawala West	277/A	126.69	126.69	100.00%
		Mabima West	276A	148.40	148.40	100.00%
		Malwana Town	281/C	128.61	128.61	100.00%
		Pattivila South	279/A	50.97	50.97	100.00%
		Thalwatta	278	79.11	79.11	100.00%
		Yabaraluwa North	280/A	51.90	51.90	100.00%
		Yabaraluwa South	280/E	39.77	39.77	100.00%
		DS Total		6026.68	625.46	10.38%
	Dompe	Giridara	407	56.05	56.05	100.00%
		Guruwala	409	86.55	86.55	100.00%
		Kapugoda	418A	73.51	73.51	100.00%
		Kumarimulla	419	58.98	58.98	100.00%

District	DS Division	GN Division Name	GN Division Code	Total Land Area of the impacted GND (Ha)	Land Area of the impacted GND Inside the basin (ha)	% of Land Area of the impacted GND inside the Basin
		Lansiyahena	415A	185.95	185.95	100.00%
		Malinda	407A	45.90	45.90	100.00%
		Malinda East	407B	89.91	89.91	100.00%
		Malwana	413	110.21	110.21	100.00%
		Nikawala	418	105.41	105.41	100.00%
		Pahala Mapitigama	412	232.86	232.86	100.00%
		Poogoda	422	86.61	86.61	100.00%
		Ranwala	379A	632.37	632.37	100.00%
		Samanabedda	416	214.06	214.06	100.00%
		Samanabedda North	416A	250.30	250.30	100.00%
		Senasungoda	424	93.82	93.82	100.00%
		Thittapattara	417	149.24	149.24	100.00%
		Udagama	384	101.00	101.00	100.00%
		Udakananpella South	424B	64.52	64.52	100.00%
		Udamapitigama	414	173.68	173.68	100.00%
		Udamapitigama South	414A	292.21	292.21	100.00%
		Wedagama	379D	207.66	207.66	100.00%
		Welgama	415	127.06	127.06	100.00%
		DS Total		18215.84	3437.84	18.87%
	Kelaniya	Kelaniya	264	117.39	117.39	100.00%
		Mewella	262A	61.52	61.52	100.00%
		Pattiya North	173B	88.65	88.65	100.00%
		Pattiya West	173A	27.83	27.83	100.00%
		Peliyagoda Gangabada	174	42.72	42.72	100.00%
		Peliyagoda Gangabada East	174B	60.50	60.50	100.00%
		Peliyagoda Pattiya East	173	46.71	46.71	100.00%
		Peliyagodawatta	174A	39.38	39.38	100.00%
		Pilapitiya	263A	47.30	47.30	100.00%
		Sinharamulla	263	46.63	46.63	100.00%
		DS Total		2193.13	578.64	26.38%
	Wattala	Galwetiya	176B	46.96	46.96	100.00%
		Hekitta	169	47.86	47.86	100.00%
		Palliyawatta South	168	47.81	33.03	69.09%
		Telangapatha	175	39.40	39.40	100.00%
		DS Total		5769.11	167.25	2.90%
	Gampaha District Total			141847.28	4809.20	3.39%
Kegall	Bulathkohup	Narangala	128C	798.31	798.31	100.00%
		DS Total		12724.69	798.31	6.27%

District	DS Division	GN Division Name	GN Division Code	Total Land Area of the impacted GND (Ha)	Land Area of the impacted GND Inside the basin (ha)	% of Land Area of the impacted GND inside the Basin
	Deraniyagala	Anhettigama	111A	421.15	421.15	100.00%
		Basnagala	111C	552.16	552.16	100.00%
		Keerihena	111B	499.91	499.91	100.00%
		Lassegama	114C	519.14	519.14	100.00%
		Nakkavita	112A	509.17	509.17	100.00%
		Panakoora	112D	345.43	345.43	100.00%
		Poddenikanda	112C	985.27	985.27	100.00%
		Udabage	111	1334.64	1334.64	100.00%
		DS Total		22208.04	5166.88	23.27%
	Ruwanwella	Medagoda	103	604.77	604.77	100.00%
		Palle Kanugala	102B	537.26	537.26	100.00%
		DS Total		13861.64	1142.03	8.24%
	Yatyanthota	Dombepola	132	658.96	658.96	100.00%
		Jayavinda Gama	132B	797.09	797.09	100.00%
		Malalpola	132A	582.11	582.11	100.00%
		DS Total		17807.47	2038.15	11.45%
	Kegalle District Total			166099.25	9145.37	5.51%
	Overall			375943.30	20933.85	5.57%

Table 3: Project interventions in Grama Niladhari Divisions

Intervention	District	DSD	GND	GN Code	Area Inside(ha)	%
50ft line(Kaduwela to Sea)	Gampaha	Wattala	Hekitta	169	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Wattala	Telangapatha	175	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Peliyagoda Gangabada East	174B	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Peliyagoda Gangabada	174	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Pattiya North	173B	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Pattiya West	173A	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Peliyagoda Pattiya East	173	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Kelaniya	264	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Wattala	Palliyawatta South	168	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Biyagama	Pattivila South	279/A	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Biyagama	Biyagama South	280/C	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Biyagama	Gonawala West	277/A	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Biyagama	Mabima West	276A	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Mewella	262A	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Pilapitiya	263A	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Sinharamulla	263	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Biyagama	Thalwatta	278	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Biyagama	Bollegala	278A	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Wattala	Galwetiya	176B	NA	NA
50ft line(Kaduwela to Sea)	Gampaha	Kelaniya	Peliyagodawatta	174A	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kolonnawa	Maha Buthgamuwa B	506C	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kolonnawa	Kuda Buthgamuwa	506A	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kolonnawa	Mulleriyawa North	501	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Colombo	Madmpitiya	C19	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kaduwela	Hewagama	474	NA	NA

Intervention	District	DSD	GND	GN Code	Area Inside(ha)	%
50ft line(Kaduwela to Sea)	Colombo	Kaduwela	Kaduwela	473A	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kaduwela	Raggahawatta	474A	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kaduwela	Welivita	475	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Colombo	Mattakkuliya	C26	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Colombo	Mahawatta	C20	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kolonnawa	Sedawatta	509A	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kolonnawa	Halmulla	509C	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kolonnawa	Kittampahuwa	508	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kolonnawa	Wennawatta	507	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kolonnawa	Kelanimulla	504	NA	NA
50ft line(Kaduwela to Sea)	Colombo	Kolonnawa	Ambathale	501A	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Biyagama	Yabaraluwa North	280/A	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Biyagama	Biyagama East	280B	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Biyagama	Malwana Town	281/C	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Biyagama	Yabaraluwa South	280/E	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Dompe	Udamapitigama	414	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Dompe	Udamapitigama South	414A	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Dompe	Welgama	415	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Dompe	Samanabedda North	416A	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Dompe	Lansiyahena	415A	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Dompe	Pahala Mapitigama	412	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Gampaha	Dompe	Malwana	413	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Colombo	Homagama	Henpita	451	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Colombo	Homagama	Atigala East	446	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Colombo	Hanwella	Pahala Hanwella	445	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Colombo	Hanwella	Hanwella Town	443B	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Colombo	Homagama	Jalthara	449	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Colombo	Kaduwela	Ranala	469	NA	NA

Intervention	District	DSD	GND	GN Code	Area Inside(ha)	%
Proposed Trace(Kaduwela to Hanwella)	Colombo	Kaduwela	Pahala Bomiriya	472A	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Colombo	Kaduwela	Nawagamuwa	470	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Colombo	Kaduwela	Wekewatta	471A	NA	NA
Proposed Trace(Kaduwela to Hanwella)	Colombo	Kaduwela	Ihala Bomiriya	471	NA	NA
Proposed Trace(Upstream of Hanwella)	Kegalle	Ruwanwella	Palle Kanugala	102B	NA	NA
Proposed Trace(Upstream of Hanwella)	Kegalle	Ruwanwella	Medagoda	103	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Thittapattara	417	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Kapugoda	418A	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Malinda	407A	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Nikawala	418	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Ranwala	379A	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Udugama	423	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Wedagama	379D	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Senasungoda	424	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Udakananpella South	424B	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Guruwala	409	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Samanabedda	416	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Poogoda	422	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Kumarimulla	419	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Malinda East	407B	NA	NA
Proposed Trace(Upstream of Hanwella)	Gampaha	Dompe	Giridara	407	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Muruthagama	426A	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Kudagama	432A	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Kahatapitiya	435	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Ihala Hanwella North	443	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Suduwella	436A	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Kalu Aggala	436	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Akaravita	434	NA	NA

Intervention	District	DSD	GND	GN Code	Area Inside(ha)	%
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Bollathawa	433	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Kanampella West	425A	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Gira Imbula	435A	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Eswatta North	429	NA	NA
Proposed Trace(Upstream of Hanwella)	Colombo	Hanwella	Kiriwandala North	431B	NA	NA
Ruecastle	Kegalle	Deraniyagala	Poddenikanda	112C	23.26	2.36
Ruecastle	Kegalle	Deraniyagala	Nakkavita	112A	61.49	12.08
Ruecastle	Kegalle	Deraniyagala	Panakoora	112D	54.06	15.65
Ruecastle	Kegalle	Deraniyagala	Keerihena	111B	45.68	9.14
Ruecastle	Kegalle	Deraniyagala	Udabage	111	2.13	0.16
Ruecastle	Kegalle	Deraniyagala	Lassegama	114C	18.46	3.56
Ruecastle	Kegalle	Deraniyagala	Anhettigama	111A	126.62	30.06
Ruecastle	Kegalle	Deraniyagala	Basnagala	111C	54.58	9.88
Wee Oya	Kegalle	Yatyanthota	Jayavinda Gama	132B	3.22	0.40
Wee Oya	Kegalle	Yatyanthota	Dombepola	132	10.47	1.59
Wee Oya	Kegalle	Bulathkohupitiya	Narangala	128C	13.50	1.69
Wee Oya	Kegalle	Yatyanthota	Malalpola	132A	155.00	26.63

Table 4: Number of households in impacted area

DSD	No of households in in DSD	% of impacted area area	No of households in impacted area
Colombo	68,245	0.1542	10,523
Kolonnawa	45,446	0.2716	12,343
Kaduwela	65,495	0.1937	12,686
Homagama	62,127	0.0672	4,175
Seethawaka	28,739	0.2397	6,889
Subtotal for Colombo District	270,052		46,617
Wattala	43,648	0.0290	1,266
Dompe	39,526	0.1887	7,459
Kelaniya	34,087	0.2638	8,992
Biyagama	49,008	0.1038	5,087
Subtotal for Gampaha District	166,269		22,804
Ruwanwella	16,684	0.0824	1,375
Bulathkohupitiya	12,670	0.0627	794
Yatyanthota	15,965	0.1145	1,828
Deraniyagala	12,387	0.2327	2,882
Subtotal for Kegalle District	57,706		6,880
Overall total for the basin	494,027		76,300

Table 5: Total population in impacted area

District	Total	Male	Female
Colombo	53,070	26,727	26,343
Kolonnawa	55,429	27,218	28,212
Kaduwela	51,978	25,484	26,494
Homagama	17,021	8,351	8,670
Seethawaka	29,044	14,128	14,916
Subtotal for Colombo District	206,543	101,908	104,634
Wattala	5,625	2,706	2,920
Dompe	32,116	15,689	16,427
Kelaniya	40,039	19,667	20,372
Biyagama	21,404	10,567	10,837
Subtotal for Gampaha District	99,184	48,629	50,555
Ruwanwella	5,488	2,632	2,856
Bulathkohupitiya	3,077	1,470	1,608
Yatyanthota	7,290	3,514	3,776
Deraniyagala	11,123	5,387	5,736
Subtotal for Kegalle District	26,979	13,003	13,976

Overall	332,705	163,540	169,165
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Table 6: Population of the age groups in impacted area

DSD	Total population in impacted area	Age Groups				
		0-4	5-19	20-34	35-59	>60
Colombo	53,070	4,489	13,650	12,882	16,496	5,554
Kolonnawa	55,429	4,558	13,575	12,791	18,119	6,386
Kaduwela	51,978	3,682	11,001	12,475	17,554	7,267
Homagama	17,021	1,297	3,650	4,183	5,636	2,256
Seethawaka	29,044	2,405	6,496	7,355	8,852	3,935
Subtotal for Colombo District	206,543	16,431	48,372	49,686	66,657	25,398
Wattala	5,625	429	1,340	1,370	1,792	694
Dompe	32,116	2,547	7,246	7,414	10,364	4,545
Kelaniya	40,039	2,875	8,781	10,822	12,573	4,989
Biyagama	21,404	1,642	4,893	5,613	6,798	2,459
Subtotal for Gampaha District	99,184	7,493	22,260	25,219	31,526	12,687
Ruwanwella	5,488	439	1,248	1,223	1,730	848
Bulathkohupitiya	3,077	263	711	650	985	468
Yatyanthota	7,290	641	1,708	1,681	2,201	1,059
Deraniyagala	11,123	943	2,604	2,565	3,355	1,657
Subtotal for Kegalle District	26,979	2,286	6,272	6,119	8,270	4,032
Overall	332,705	26,209	76,903	81,024	106,453	42,116

Table 7: Ethnicity of the population in the impacted area

DSD	Total population in impacted area	Sinhalese	Tamil	Sri Lanka Moor	Other
Colombo	53,070	40,598.66	5,943.86	5,678.50	849.12
Kolonnawa	55,429	42,403.51	6,208.10	5,930.95	886.87
Kaduwela	51,978	39,763.09	5,821.52	5,561.64	831.65
Homagama	17,021	13,021.24	1,906.38	1,821.27	272.34
Seethawaka	29,044	22,218.58	3,252.92	3,107.70	464.70
Subtotal for Colombo District	206,543	158,005	23,133	22,100	3,305
Wattala	5,625	5,090.95	219.39	236.27	73.13
Dompe	32,116	29,064.88	1,252.52	1,348.87	417.51
Kelaniya	40,039	36,235.18	1,561.52	1,681.63	520.51
Biyagama	21,404	19,370.28	834.74	898.95	278.25
Subtotal for Gampaha District	99,184	89,761	3,868	4,166	1,289
Ruwanwella	5,488	4,692.46	400.64	389.67	5.49
Bulathkohupitiya	3,077	2,631.03	224.64	218.48	3.08
Yatyanthota	7,290	6,233.08	532.18	517.60	7.29

Deraniyagala	11,123	9,510.42	812.00	789.75	11.12
Subtotal for Kegalle District	26,979	23,067	1,969	1,916	27
Overall	332,705	270,833	28,970	28,181	4,621

Table 8: Religion of the population in the impacted area

DSD	Total population in impacted area	Buddhist	Hindu	Islam	Roman Catholic	Other
Colombo	53,070	37,255	4,246	6,262	3,715	1,592
Kolonnawa	55,429	38,911	4,434	6,541	3,880	1,663
Kaduwela	51,978	36,488	4,158	6,133	3,638	1,559
Homagama	17,021	11,949	1,362	2,009	1,191	511
Seethawaka	29,044	20,389	2,324	3,427	2,033	871
Subtotal for Colombo District	206,543	144,993	16,523	24,372	14,458	6,196
Wattala	5,625	4,011	129	276	1,097	113
Dompe	32,116	22,899	739	1,574	6,263	642
Kelaniya	40,039	28,548	921	1,962	7,808	801
Biyagama	21,404	15,261	492	1,049	4,174	428
Subtotal for Gampaha District	99,184	70,718	2,281	4,860	19,341	1,984
Ruwanwella	5,488	4,632	357	401	-	99
Bulathkohupitiya	3,077	2,597	200	225	-	55
Yatyanthota	7,290	6,153	474	532	-	131
Deraniyagala	11,123	9,388	723	812	-	200
Subtotal for Kegalle District	26,979	22,770	1,754	1,969	-	486
Overall	332,705	238,481	20,558	31,201	33,799	8,666

Table 9: Household tenure in the impacted area

DSD	Total	Owned by household	Rent/Lease by Government	Rent/Lease Private	Rent Free	Encroacher	Other
Colombo	10,523	7,359	941	1,763	274	125	61
Kolonnawa	12,343	9,037	601	1,933	277	362	132
Kaduwela	12,686	10,190	290	1,753	294	36	124
Homagama	4,175	3,417	83	543	82	17	33
Seethawaka	6,889	5,574	126	511	449	129	99
Subtotal for Colombo	46,617	35,576	2,041	6,503	1,377	670	449
Wattala	1,266	900	47	206	32	72	10
Dompe	7,459	6,822	74	311	119	34	100
Kelaniya	8,992	6,341	318	1,629	142	431	132

DSD	Total	Owned by household	Rent/Lease by Government	Rent/Lease Private	Rent Free	Encroacher	Other
Biyagama	5,087	3,634	106	1,024	283	18	23
Subtotal for Gampaha	22,804	17,696	544	3,169	574	555	265
Ruwanwella	1,375	1,230	18	45	56	2	24
Bulathkohupitiya	794	649	8	23	106	5	4
Yatyanthota	1,828	1,424	65	83	213	28	15
Deraniyagala	2,882	2,180	63	89	474	34	43
Subtotal for Kegalle	6,880	5,483	153	240	849	69	86
Overall total for the basin	76,300	58,756	2,738	9,912	2,800	1,294	800

Table 10: Employment levels of the population

DSD	Total	Employed	Unemployed	Economically not active
Colombo	39,472	18,210	1,019	20,243
Kolonnawa	41,717	20,207	1,138	20,371
Kaduwela	41,008	20,838	994	19,175
Homagama	13,304	6,856	309	6,139
Seethawaka	22,315	11,708	658	9,949
Subtotal for Colombo District	157,815	77,819	4,119	75,877
Wattala	4,308	2,073	119	2,116
Dompe	24,663	11,928	765	11,970
Kelaniya	31,421	15,020	1,048	15,353
Biyagama	16,575	8,356	461	7,758
Subtotal for Gampaha District	76,968	37,377	2,394	37,197
Ruwanwella	4,186	2,007	164	2,016
Bulathkohupitiya	2,319	1,154	83	1,082
Yatyanthota	5,471	2,761	194	2,516
Deraniyagala	8,407	4,486	386	3,536
Subtotal for Kegalle District	20,383	10,408	826	9,149
Overall	255,166	125,603	7,339	122,224

Table 11: Educational level of the population in the impacted area (above 4 years)

DSD	Total Population above 4 Years	Primary	Secondary	G.C.E. (O/L)	G.C.E. (A/L)	Degree and above	No schooling
Colombo	48,581	11,685	20,990	8,158	4,701	849	2,197
Kolonnawa	50,872	9,428	20,970	10,323	7,087	1,507	1,556
Kaduwela	48,296	6,781	15,170	11,634	10,532	3,359	820
Homagama	15,724	2,296	5,180	4,116	3,152	725	256
Seethawaka	26,639	5,142	10,995	5,349	3,701	712	740
Subtotal for Colombo District	190,112	35,332	73,307	39,579	29,173	7,153	5,568
Wattala	5,196	878	2,139	1,159	773	142	105
Dompe	29,569	5,127	12,729	6,278	4,153	692	590
Kelaniya	37,164	5,977	13,636	7,812	6,981	1,868	892
Biyagama	19,762	3,074	7,967	4,431	3,242	700	347
Subtotal for Gampaha District	91,691	15,056	36,471	19,680	15,150	3,401	1,934
Ruwanwella	5,049	1,137	2,147	869	620	91	185
Bulathkohupitiya	2,814	760	1,194	387	277	44	151
Yatyanthota	6,649	1,894	2,789	991	553	66	355
Deraniyagala	10,181	2,965	4,404	1,264	811	98	639
Subtotal for Kegalle District	24,693	6,756	10,534	3,512	2,262	300	1,330
Overall	306,496	57,144	120,312	62,771	46,585	10,853	8,832

Table 12: Public assistance recipients of the impacted area

DSD	Recipient of TB	Recipient of cancer	Recipient of Thalassemi	Recipient of Leprosaria	Public assistance	Kidney assistance	Elders assistance	Other assistance	Total
Colombo	-	-	-	-	-	-	-	-	-
Kolonnawa	-	-	-	-	-	-	-	-	-
Kaduwela	2	14	1	1	16	-	-	-	34
Homagama	-	-	-	-	-	-	-	-	-
Seethawaka	1	19	0	1	554	-	-	-	575
Subtotal for Colombo District	3	33	1	2	570	-	-	-	609
Wattala	0	4	0	0	34	-	31	7	76
Dompe	0	45	-	1	434	-	415	47	942
Kelaniya	2	17	1	0	244	-	254	63	580

DSD	Recipient of TB	Recipient of cancer	Recipient of Thalassemi	Recipient of Leprosaria	Public assistance	Kidney assistance	Elders assistance	Other assistance	Total
Biyagama	0	9	0	0	116	-	157	22	304
Subtotal for Gampaha District	2	75	1	1	828	-	857	139	1,902
Ruwanwella		6	0	-	93	-	74	7	180
Bulathkohupitiya	1	3	-	0	46	-	20	4	73
Yatyanthota	-	9	0	-	143	-	120	-	273
Deraniyagala	-	16	-	1	121	-	151	16	306
Subtotal for Kegalle District	1	34	1	1	403	-	365	27	832
Overall	6	142	2	4	1,801	-	1,222	165	3,343

Table 13: Samurdhi beneficiaries in the impacted area

DSD	Total no of families in the basin area	No of families receiving samurdhi in basin area	% of families receiving samurdhi benefits
Colombo	22,092	3,407	15%
Kolonnawa	45,446	12,343	27%
Kaduwela	65,469	12,681	19%
Homagama	11,212	753	7%
Seethawaka	28,739	6,889	24%
Sub total	172,959	36,073	21%
Wattala	3,384	98	3%
Dompe	35,993	6,792	19%
Kelaniya	34,087	8,992	26%
Biyagama	49,008	5,087	10%
Sub total	122,472	20,969	17%
Ruwanwella	8,613	710	8%
Bulathkohupitiya	12,658	794	6%
Yatyanthota	15,939	1,825	11%
Deraniyagala	11,959	2,783	23%
Sub total	49,169	6,111	12%
Overall total for the basin	344,599	63,154	18%

Table 14: Types of housing in the impacted area

DSD	Total	Permanent	Semi-permanent	Improved	Un-classified
Colombo	10,151	9,331	795	19	6
Kolonnawa	12,130	10,858	1,169	93	11
Kaduwela	12,550	11,984	513	24	29
Homagama	4,133	3,973	153	7	-
Seethawaka	6,830	5,907	896	26	0
Sub total	45,794	42,053	3,526	169	47
Wattala	1,252	1,100	140	12	-
Dompe	7,429	6,727	674	28	-
Kelaniya	8,812	7,722	1,044	37	9
Biyagama	4,992	4,690	293	9	-
Sub total	22,485	20,238	2,151	86	9
Ruwanwella	1,368	1,137	225	6	-
Bulathkohupitiya	790	566	221	3	-
Yatyanthota	1,814	1,184	616	14	-
Deraniyagala	2,867	1,845	984	38	-
Sub total	6,839	4,732	2,046	61	-
Overall total for the basin	75,118	67,023	7,723	316	57

Table 15: Number of different housing structures in the impacted area

DSD	Total	Single -1 story	Single-2 story	Single 2+ story	Attached house/Annex	Flat	Condominium	Twin house	Row/Line room	Hut/Shanty
Colombo	10,151	4,154	2,274	481	336	1,381	145	55	1,058	266
Kolonnawa	12,130	7,481	2,627	181	625	209	-	176	580	252
Kaduwela	12,550	8,945	2,949	166	312	17	21	26	83	31
Homagama	4,133	3,333	551	16	112	84	-	7	24	7
Seethawaka	6,830	5,804	553	24	119	13	-	39	241	36
Sub total	45,794	29,717	8,954	868	1,504	1,705	166	303	1,986	591
Wattala	1,252	955	191	11	53	5	-	7	17	14
Dompe	7,429	6,975	364	6	34	1	-	6	13	31
Kelaniya	8,812	5,912	1,845	137	365	42	-	99	242	170
Biyagama	4,992	3,792	703	27	100	11	-	43	302	15
Sub total	22,485	17,633	3,102	181	551	58	-	156	575	229
Ruwanwella	1,368	1,245	67	1	3	-	-	7	39	5
Bulathkohupitiya	790	674	21	1	1	0	-	5	87	2
Yatyanthota	1,814	1,470	72	5	4	0	-	19	230	12

DSD	Total	Single -1 story	Single-2 story	Single 2+ story	Attached house/Annex	Flat	Condominium	Twin house	Row/Line room	Hut/Shanty
Deraniyagala	2,867	2,303	91	5	11	0	-	41	400	16
Sub total	6,839	5,692	251	13	19	1	-	73	756	34
Overall total for the basin	75,118	53,043	12,307	1,062	2,074	1,764	166	531	3,317	855

Table 16: Material used for flooring of housing units in the impacted area

DSD	Total	Cement	Tile/Granite/Terrazzo	Mud	Wood	Sand	Concrete	Other
Colombo	10,151	7,656	2,346	28	32	7	59	22
Kolonnawa	12,130	7,921	3,534	122	15	8	510	21
Kaduwela	12,550	6,847	4,910	79	23	8	637	46
Homagama	4,133	2,565	1,233	26	1	3	301	5
Seethawaka	6,830	5,134	1,053	130	3	17	480	12
Subtotal for Colombo	45,794	30,123	13,076	386	74	43	1,986	105
Wattala	1,252	828	330	16	6	4	61	8
Dompe	7,429	5,531	1,087	174	1	13	605	18
Kelaniya	8,812	5,847	2,576	60	12	5	289	22
Biyagama	4,992	3,447	1,208	31	1	3	293	7
Subtotal for Gampaha	22,485	15,653	5,202	281	20	25	1,248	56
Ruwanwella	1,368	1,086	119	70	0	2	86	4
Bulathkohupitiya	790	632	38	83	1	0	35	2
Yatyanthota	1,814	1,491	109	134	2	2	67	9
Deraniyagala	2,867	2,290	158	294	4	4	111	6
Subtotal for Kegalle	6,839	5,500	424	581	7	8	298	21
Overall total for the basin	75,118	51,276	18,702	1,248	101	77	3,532	183

Table 17: Material used for roofing of housing units in the impacted area

DSD	Total	Tile	Asbestos	Concrete	Aluminum	Metal sheet	Palmyra	Other
Colombo	10,151	803	5,984	2,589	145	571	19	40
Kolonnawa	12,130	1,364	7,704	1,971	144	910	10	27
Kaduwela	12,550	2,288	8,755	1,003	83	373	5	42
Homagama	4,133	988	2,750	262	27	100	2	4
Seethawaka	6,830	2,094	3,645	222	87	741	17	22
Subtotal for Colombo	45,794	7,538	28,838	6,048	486	2,696	54	135
Wattala	1,252	290	751	90	16	102	3	1

DSD	Total	Tile	Asbestos	Concrete	Alumi num	Metal sheet	Palmyra	Other
Dompe	7,429	4,203	2,625	140	43	370	31	17
Kelaniya	8,812	1,228	5,747	819	146	849	10	13
Biyagama	4,992	1,255	3,235	332	22	142	2	4
Subtotal for Gampaha	22,485	6,976	12,358	1,380	227	1,464	46	34
Ruwanwella	1,368	721	428	22	15	169	10	2
Bulathkohupitiya	790	339	240	9	7	191	4	1
Yatyanthota	1,814	466	705	44	15	570	7	6
Deraniyagala	2,867	656	1,249	36	7	885	15	20
Subtotal for Kegalle	6,839	2,182	2,622	111	43	1,815	36	30
Overall total for the basin	75,118	16,696	43,818	7,539	756	5,975	136	199

Table 18: Material used for walls of housing units in the impacted area

DSD	Total	Brick	Cement Block/Stone	Cabook	Soil Bricks	Mud	Palmyra	Metal Sheet	Other
Colombo	10,151	5,463	4,036	149	12	4	18	453	16
Kolonnawa	12,130	4,868	6,056	194	35	26	8	927	15
Kaduwela	12,550	4,524	7,221	423	107	101	1	134	39
Homagama	4,133	820	2,852	343	50	36	1	26	4
Seethawaka	6,830	1,018	4,984	427	104	122	9	150	15
Subtotal for Colombo	45,794	16,695	25,149	1,536	308	290	37	1,690	89
Wattala	1,252	706	393	31	6	6	2	106	1
Dompe	7,429	1,244	4,844	756	202	263	6	95	20
Kelaniya	8,812	4,390	3,437	180	63	81	1	643	16
Biyagama	4,992	1,521	3,037	170	75	139	1	46	3
Subtotal for Gampaha	22,485	7,860	11,711	1,138	345	488	11	890	40
Ruwanwella	1,368	140	1,032	43	68	60	1	21	3
Bulathkohupitiya	790	60	626	7	36	52	0	8	1
Yatyanthota	1,814	76	1,494	21	85	75	1	55	6
Deraniyagala	2,867	129	2,249	11	81	233	2	160	3
Subtotal for Kegalle	6,839	406	5,402	82	270	420	4	244	12
Overall total for the basin	75,118	24,961	42,262	2,756	923	1,198	51	2,824	142

Table 19: Types of lighting in the impacted area

DSD	Total	National network	Rural hydro power	Kerosene	Solar power	Bio Gas	Other
Colombo	10,523	10,044	-	461	3	1	15
Kolonnawa	12,343	12,013	-	306	1	0	23
Kaduwela	12,686	12,467	-	210	0	0	9
Homagama	4,175	4,092	-	81	0	-	2
Seethawaka	6,889	6,472	-	406	3	-	7
Subtotal for Colombo	46,617	45,087	-	1,464	8	1	56
Wattala	1,266	1,225	-	39	0	-	2
Dompe	7,459	7,011	-	443	1	0	3
Kelaniya	8,992	8,780	-	199	2	-	12
Biyagama	5,087	4,978	-	106	0	-	3
Subtotal for Gampaha	22,804	21,994	-	787	3	0	19
Ruwanwella	1,375	1,202	14	152	6	-	0
Bulathkohupitiya	794	647	19	125	3	-	1
Yatyanthota	1,828	1,416	77	319	15	-	1
Deraniyagala	2,882	1,943	115	752	71	-	2
Subtotal for Kegalle	6,880	5,207	224	1,348	96	-	4
Overall total for the basin	76,300	72,288	224	3,599	107	2	80

Table 20: Types of cooking fuel used in the impacted area

DSD	Total	Fire wood	Kerosene	Gas	Electricity	Paddy husk	Other
Colombo	10,523	460	3,525	6,442	36	1	60
Kolonnawa	12,343	3,081	1,945	7,200	24	4	89
Kaduwela	12,686	4,670	340	7,557	31	9	79
Homagama	4,175	2,125	103	1,908	8	4	27
Seethawaka	6,889	5,539	105	1,194	10	3	37
Subtotal for Colombo	46,617	15,875	6,018	24,301	109	21	292
Wattala	1,266	466	127	657	5	1	10
Dompe	7,459	6,617	38	769	6	1	27
Kelaniya	8,992	2,569	1,054	5,177	25	5	162
Biyagama	5,087	2,530	399	2,066	9	5	79
Subtotal for Gampaha	22,804	12,181	1,618	8,670	44	12	278
Ruwanwella	1,375	1,295	3	73	1	0	2

DSD	Total	Fire wood	Kerosene	Gas	Electricity	Paddy husk	Other
Bulathkohupitiya	794	777	1	14	1	0	2
Yatinyanthota	1,828	1,735	6	84	1	0	2
Deraniyagala	2,882	2,771	6	96	4	1	4
Subtotal for Kegalle	6,880	6,577	17	268	6	2	9
Overall total for the basin	76,300	34,634	7,653	33,238	159	36	580

Table 21: Sources of drinking water in the impacted area

DSD	Total	Protecte d well within premises	Protecte d well outside premises	Unprote cted well	Tap within house	Tap wit hin pre mises	Tap outside premises	Rural water projects	Tube well	Bowser	River/ T ank/stre am	Rain water	Bottle water
Colombo	10,523	58	10	4	8,098	753	1,497	-	68	0	0	2	6
Kolonnawa	12,343	574	42	11	10,345	802	461	-	42	-	1	-	4
Kaduwela	12,686	3,705	228	35	7,552	600	475	-	47	-	1	0	13
Homagama	4,175	2,724	218	33	812	71	45	240	19	0	-	0	1
Seethawaka	6,889	2,963	660	117	1,215	221	100	1,234	21	1	328	0	1
Subtotal for Colombo	46,617	10,024	1,158	200	28,022	2,446	2,579	1,474	197	1	330	3	26
Wattala	1,266	250	21	1	678	137	52	37	79	0	1	2	1
Dompe	7,459	5,315	930	277	446	86	84	212	44	0	17	0	2
Kelaniya	8,992	943	52	11	6,654	957	233	39	51	1	1	1	9
Biyagama	5,087	2,319	276	24	1,867	398	150	-	44	0	0	-	1
Subtotal for Gampaha	22,804	8,827	1,279	313	9,645	1,578	519	288	217	2	19	3	14
Ruwanwella	1,375	408	255	115	195	65	48	111	7	-	156	0	-
Bulathkohupitiya	794	167	169	68	29	30	18	133	1	0	164	1	-
Yatyanthota	1,828	258	213	77	137	128	120	369	5	0	504	1	-
Deraniyagala	2,882	142	236	198	252	166	101	553	6	6	1,205	3	-
Subtotal for Kegalle	6,880	974	872	458	614	389	286	1,165	19	6	2,029	4	-
Overall total for the basin	76,300	19,826	3,310	971	38,280	4,414	3,384	2,927	433	10	2,378	10	39

Table 22: Number of schools in the districts in the impacted area

Divisional Secretariat Division	National school	1AB Schools	1C Schools	Grade 2 Schools	Grade 3 Schools	Total
Colombo	4	2	22	35	9	72
Kolonnawa	2	1	4	10	2	19
Kaduwela	2	2	7	14	7	32
Homagama	1	1	6	21	8	37
Seethawaka	2	1	4	21	8	36
Sub total	11	7	43	101	34	196
Wattala	1	4	6	9	7	27
Dompe	1	3	11	16	16	47
Kelaniya	3	3	8	5	6	25
Biyagama	1	5	5	6	10	27
Sub total	6	15	30	36	39	126
Ruwanwella	1	5	3	19	12	40
Bulathkohupitiya	-	2	8	13	10	33
Yatyanthota	1	2	6	21	19	49
Dehiovita	1	2	11	18	29	61
Deraniyagala	1	1	4	18	14	38
Sub total	4	12	32	89	84	221
Overall total for the basin	21	34	105	226	157	543

Table 23: Student-teacher ratio in the districts in the impacted area

Divisional Secretariat Division	No of students	No of teachers	Ratio
Colombo	49,991	2,394	20.9
Kolonnawa	16,065	754	21.3
Kaduwela	26,138	1,197	21.8
Homagama	26,466	1,244	21.3
Seethawaka	21,084	1,047	20.1
Subtotal	139,744	6,636	21.1
Wattala	23,820	968	24.6
Dompe	25,210	1,120	22.5
Kelaniya	28,965	1,180	24.5
Biyagama	23,788	948	25.1
Subtotal	101,783	4,216	24.1
Ruwanwella	13,535	898	15.1
Bulathkohupitiya	7,586	551	13.8
Yatyanthota	12,844	763	16.8
Deraniyagala	8,779	546	16.1
Subtotal	42,744	2,758	15.5
Overall total for the basin	284,271	13,610	20.9

Table 24: Availability of the health and medical facilities in the impacted area

Divisional Secretariat Division	No of hospitals	No of beds	No of MOH	PHIs	Health Midwives
Colombo	1	58			
Kolonnawa			1	8	38
Kaduwela	3	158	1	11	54
Homagama	2	526	1	10	52
Seethawaka	2	594	1	8	31
Subtotal	8	1,336	4	37	175
Wattala	1	39	1	8	25
Dompe	2	173	1	7	37
Kelaniya	1	81	1	7	22
Biyagama	1	30	1	9	33
Subtotal	5	323	4	31	117
Ruwanwella	3	333	1	4	18
Bulathkohupitiya	1	90	1	4	13
Yatyanthota	1	123	1	4	20
Deraniyagala	1	69	1	3	16
Subtotal	6	615	4	15	67
Overall total for the basin	19	2,274	12	83	359

Table 25: Road lengths in districts related to impacted area

Type of Roads	Roads length in the district(Km.)		
	Colombo	Gampaha	Kegalle
A Grade	110	60	55
B Grade	263	283	141
C Grade	201	139	324
D Grade	158	1	362
Local Government	453	212	109
Total length of road	1,185	695	991

Table 26: Availability of toilets in the impacted area

DSD	Total	Water seal and connected to a piped sewer system	Water seal and connected to a septic tank	Pour flush toilet	Direct pit	Other	Not using a toilet
Colombo	10,523	3,425	6,793	120	102	74	9
Kolonnawa	12,343	10,458	979	218	537	146	6
Kaduwela	12,686	11,504	748	261	158	12	3
Homagama	4,175	3,871	169	63	68	1	2
Seethawaka	6,889	6,653	123	53	38	3	19
Subtotal for Colombo	46,617	35,911	8,813	715	903	236	40
Wattala	1,266	1,170	63	18	9	5	2
Dompe	7,459	7,010	268	84	86	2	8
Kelaniya	8,992	7,925	790	106	125	29	17
Biyagama	5,087	4,507	172	297	107	2	2
Subtotal for Gampaha	22,804	20,612	1,293	506	327	37	28
Ruwanwella	1,375	1,116	83	149	20	0	6
Bulathkohupitiya	794	747	9	15	14	0	10
Yatiyanthota	1,828	1,677	64	19	54	0	13
Deraniyagala	2,882	2,502	59	124	135	1	61
Subtotal for Kegalle	6,880	6,043	215	308	222	2	90
Overall total for the basin	76,300	62,566	10,321	1,529	1,452	274	157

Table 27: Principal methods of solid waste disposal in the impacted area

DSD	Total	Collected by local authority	Burn by occupants	Bury by occupants	Composting by occupants	Road/River/canal/sea/forest	Other
Colombo	10,523	10,322	41	19	2	92	48
Kolonnawa	12,343	10,136	1,539	339	140	147	41
Kaduwela	12,686	7,274	3,565	1,232	550	32	33
Homagama	4,175	872	2,047	898	334	6	19
Seethawaka	6,889	1,443	3,321	1,650	432	38	5
Subtotal for Colombo	46,617	30,047	10,513	4,138	1,459	315	145
Wattala	1,266	763	388	80	18	15	2
Dompe	7,459	399	4,637	2,111	299	4	8
Kelaniya	8,992	7,326	1,220	280	105	58	3
Biyagama	5,087	1,733	2,479	638	189	35	14
Subtotal for Gampaha	22,804	10,221	8,724	3,110	610	112	27
Ruwanwella	1,375	74	643	539	110	7	1
Bulathkohupitiya	794	21	313	394	47	18	1

DSD	Total	Collected by local authority	Burn by occupants	Bury by occupants	Composting by occupants	Road/River/canal/sea/forest	Other
Yatiyanthota	1,828	162	764	760	123	10	8
Deraniyagala	2,882	83	1,106	1,414	208	65	5
Subtotal for Kegalle	6,880	340	2,828	3,107	489	101	15
Overall total for the basin	76,300	40,607	22,064	10,355	2,558	528	187

Table 28: Gender population by age groups in the impacted area

DSD	Total		0-4		5-19		20-34		35-59		>60	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Colombo	26,727	26,343	2,261	2,228	6,874	6,775	6,488	6,394	8,308	8,188	2,797	2,757
Kolonnawa	27,218	28,212	2,238	2,320	6,666	6,909	6,281	6,510	8,897	9,222	3,136	3,250
Kaduwela	25,484	26,494	1,805	1,877	5,394	5,607	6,116	6,358	8,606	8,947	3,563	3,704
Homagama	8,351	8,670	636	661	1,791	1,859	2,053	2,131	2,765	2,871	1,107	1,149
Seethawaka	14,128	14,916	1,170	1,235	3,160	3,336	3,578	3,777	4,306	4,546	1,914	2,021
Subtotal for Colombo District	101,908	104,634	8,110	8,320	23,884	24,487	24,515	25,171	32,882	33,775	12,517	12,881
Wattala	2,706	2,920	206	223	645	695	659	711	862	930	334	360
Dompe	15,689	16,427	1,244	1,303	3,540	3,706	3,622	3,792	5,063	5,301	2,220	2,325
Kelaniya	19,667	20,372	1,412	1,463	4,313	4,468	5,316	5,506	6,176	6,397	2,451	2,538
Biyagama	10,567	10,837	811	831	2,415	2,477	2,771	2,842	3,356	3,442	1,214	1,245
Subtotal for Gampaha District	48,629	50,555	3,673	3,819	10,913	11,347	12,367	12,851	15,456	16,070	6,218	6,468
Ruwanwella	2,632	2,856	211	229	599	649	586	636	830	900	407	441
Bulathkohupitiya	1,470	1,608	126	137	340	372	311	340	470	514	223	244
Yatyanthota	3,514	3,776	309	332	823	885	810	871	1,061	1,140	511	549
Deraniyagala	5,387	5,736	457	486	1,261	1,343	1,242	1,323	1,625	1,730	802	854
Subtotal for Kegalle District	13,003	13,976	1,102	1,184	3,023	3,249	2,950	3,170	3,985	4,284	1,943	2,089
Overall	163,540	169,165	12,885	13,324	37,820	39,083	39,832	41,192	52,324	54,129	20,678	21,438

Table 29: Gender population by ethnicity in the impacted area

DSD	Sinhalese		Tamil		Sri Lanka Moor		Other	
	Male	Female	Male	Female	Male	Female	Male	Female
Colombo	20,446	20,152	2,993	2,950	2,860	2,819	428	421
Kolonnawa	20,822	21,582	3,048	3,160	2,912	3,019	435	451
Kaduwela	19,495	20,268	2,854	2,967	2,727	2,835	408	424
Homagama	6,389	6,632	935	971	894	928	134	139
Seethawaka	10,808	11,411	1,582	1,671	1,512	1,596	226	239
Total - Colombo District	77,960	80,045	11,414	11,719	10,904	11,196	1,631	1,674
Wattala	2,451	2,645	106	114	114	123	35	38
Dompe	14,214	14,883	612	641	659	690	204	214
Kelaniya	17,818	18,457	767	794	826	856	256	265
Biyagama	9,573	9,818	412	423	444	455	137	141
Total - Gampaha District	44,057	45,803	1,897	1,972	2,042	2,123	632	657
Ruwanwella	2,251	2,442	192	208	187	203	3	3
Bulathkohupitiya	1,256	1,375	107	117	104	114	1	2
Yatyanthota	3,004	3,229	257	276	249	268	4	4

Table 30: Gender population by religion in the impacted area

DSD	Buddhist		Hindu		Islam		Roman Catholic		Other	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Colombo	18,762	18,493	2,138	2,107	3,154	3,108	1,871	1,844	802	790
Kolonnawa	19,107	19,805	2,177	2,257	3,212	3,329	1,905	1,975	817	846
Kaduwela	17,890	18,599	2,039	2,120	3,007	3,126	1,784	1,855	765	795
Homagama	5,863	6,086	668	694	985	1,023	585	607	251	260

DSD	Buddhist		Hindu		Islam		Roman Catholic		Other	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Seethawaka	9,918	10,471	1,130	1,193	1,667	1,760	989	1,044	424	447
Colombo District	71,539	73,453	8,153	8,371	12,025	12,347	7,134	7,324	3,057	3,139
Wattala	1,929	2,082	62	67	133	143	528	569	54	58
Dompe	11,186	11,712	361	378	769	805	3,059	3,203	314	329
Kelaniya	14,023	14,525	452	469	964	998	3,835	3,972	393	407
Biyagama	7,534	7,727	243	249	518	531	2,061	2,113	211	217
Gampaha District	34,672	36,046	1,118	1,163	2,383	2,477	9,483	9,858	973	1,011
Ruwanwella	2,222	2,410	171	186	192	208	-	-	47	51
Bulathkohupit	1,240	1,357	96	105	107	117	-	-	26	29
Yatyanthota	2,966	3,187	228	245	257	276	-	-	63	68
Deraniyagala	4,547	4,841	350	373	393	419	-	-	97	103
Kegalle District	10,975	11,796	845	908	949	1,020	-	-	234	252
Total	117,186	121,295	10,116	10,442	15,357	15,844	16,616	17,183	4,264	4,402

Table 31: Gender population by education in the impacted area

DSD	Total		Primary		Secondary		G.C.E. (O/L)		G.C.E. (A/L)		Degree and above		No schooling	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Colombo	24,467	24,115	5,885	5,800	10,571	10,419	4,109	4,050	2,368	2,334	428	422	1,107	1,091
Kolonnawa	24,980	25,892	4,629	4,799	10,297	10,673	5,069	5,254	3,480	3,607	740	767	764	792
Kaduwela	23,679	24,617	3,325	3,457	7,438	7,733	5,704	5,930	5,164	5,368	1,647	1,712	402	418
Homagama	7,715	8,009	1,126	1,169	2,542	2,639	2,019	2,096	1,547	1,606	356	369	126	130
Seethawaka	12,958	13,681	2,501	2,641	5,348	5,647	2,602	2,747	1,800	1,901	346	366	360	380
Subtotal for Colombo District	93,798	96,314	17,467	17,865	36,196	37,110	19,503	20,077	14,358	14,815	3,517	3,636	2,758	2,811
Wattala	2,499	2,697	422	456	1,029	1,110	557	602	372	401	68	73	51	55
Dompe	14,445	15,124	2,505	2,622	6,218	6,511	3,067	3,211	2,029	2,124	338	354	288	302
Kelaniya	18,255	18,909	2,936	3,041	6,698	6,938	3,837	3,975	3,429	3,552	917	950	438	454
Biyagama	9,756	10,006	1,518	1,557	3,933	4,034	2,187	2,243	1,601	1,642	346	354	171	176
Subtotal for Gampaha District	44,955	46,736	7,380	7,675	17,878	18,593	9,649	10,031	7,430	7,719	1,669	1,732	948	986
Ruwanwella	2,421	2,627	545	592	1,030	1,117	417	452	298	323	43	47	89	96
Bulathkohupitiya	1,344	1,470	363	397	570	624	185	202	132	145	21	23	72	79
Yatiyanthota	3,205	3,444	913	981	1,344	1,445	478	513	267	287	32	34	171	184
Deraniyagala	4,931	5,250	1,436	1,529	2,133	2,271	612	652	393	418	48	51	309	329
Subtotal for Kegalle District	11,901	12,792	3,257	3,499	5,077	5,457	1,692	1,820	1,090	1,173	144	155	641	688
Total	150,655	155,842	28,104	29,040	59,152	61,160	30,844	31,928	22,878	23,707	5,330	5,523	4,347	4,485

Table 32: Gender population by employment in the impacted area

DSD	Total		Employed		Unemployed		Economically not active	
	Male	Female	Male	Female	Male	Female	Male	Female
Colombo	19,879	19,593	9,171	9,039	513	506	10,195	10,048
Kolonnawa	20,484	21,232	9,922	10,285	559	579	10,003	10,368
Kaduwela	20,105	20,902	10,217	10,621	487	507	9,401	9,774
Homagama	6,527	6,776	3,364	3,492	152	158	3,012	3,127
Seethawaka	10,855	11,460	5,695	6,013	320	338	4,839	5,109
Subtotal for Colombo District	77,851	79,964	38,369	39,450	2,031	2,087	37,451	38,427
Wattala	2,072	2,236	997	1,076	57	62	1,018	1,098
Dompe	12,048	12,615	5,827	6,101	374	391	5,847	6,122
Kelaniya	15,434	15,987	7,378	7,642	515	533	7,542	7,812
Biyagama	8,183	8,392	4,125	4,231	228	234	3,830	3,928
Subtotal for Gampaha District	37,738	39,230	18,327	19,050	1,174	1,220	18,237	18,960
Ruwanwella	2,008	2,178	963	1,044	78	85	967	1,049
Bulathkohupitiya	1,107	1,212	551	603	40	43	517	565
Yatyanthota	2,637	2,834	1,331	1,430	93	100	1,213	1,303
Deraniyagala	4,072	4,335	2,173	2,313	187	199	1,712	1,823
Subtotal for Kegalle District	9,824	10,559	5,017	5,391	398	428	4,409	4,741
Overall	125,412	129,754	61,713	63,891	3,603	3,735	60,096	62,128

Table 33: Population below the poverty line in the impacted area

DSD	Impacted area		
	Total population in 2018	Total poor population in 2018	% of poor
Colombo	53,070	2,011	3.8%
Kolonnawa	55,429	1,561	2.8%
Kaduwela	51,978	966	1.9%
Homagama	17,021	449	2.6%
Seethawaka	29,044	1,450	5.0%
Subtotal for Colombo District	206,543	6,436	3.1%
Wattala	5,625	144	2.6%
Dompe	32,116	1,707	5.3%
Kelaniya	40,039	809	2.0%
Biyagama	21,404	685	3.2%
Subtotal for Gampaha District	99,184	3,344	3.4%
Ruwanwella	5,488	438	8.0%
Bulathkohupitiya	3,077	295	9.6%
Yatyanthota	7,290	794	10.9%
Deraniyagala	11,123	1,286	11.6%

DSD	Impacted area		
	Total population in 2018	Total poor population in 2018	% of poor
Subtotal for Kegalle District	26,979	2,814	10.4%
Overall total for the basin	332,705	12,594	3.8%

Table 34: Unemployed population in the impacted area

DSD	Total population	Unemployed	%
Colombo	53,070	1,019	1.9%
Kolonnawa	55,429	1,138	2.1%
Kaduwela	51,978	994	1.9%
Homagama	17,021	309	1.8%
Seethawaka	29,044	658	2.3%
Subtotal for Colombo District	206,543	4,119	2.0%
Wattala	5,625	119	2.1%
Dompe	32,116	765	2.4%
Kelaniya	40,039	1,048	2.6%
Biyagama	21,404	461	2.2%
Subtotal for Gampaha District	99,184	2,394	2.4%
Ruwanwella	5,488	164	3.0%
Bulathkohupitiya	3,077	83	2.7%
Yatyanthota	7,290	194	2.7%
Deraniyagala	11,123	386	3.5%
Subtotal for Kegalle District	26,979	826	3.1%
Overall total for the basin	332,705	7,339	2.2%

Table 35: Population who did not attend school

DSD	Total Population above 4 Years	No schooling	%
Colombo	48,581	2,197	4.5%
Kolonnawa	50,872	1,556	3.1%
Kaduwela	48,296	820	1.7%
Homagama	15,724	256	1.6%
Seethawaka	26,639	740	2.8%
Subtotal for Colombo District	190,112	5,568	2.9%
Wattala	5,196	105	2.0%
Dompe	29,569	590	2.0%
Kelaniya	37,164	892	2.4%
Biyagama	19,762	347	1.8%
Subtotal for Gampaha District	91,691	1,934	2.1%
Ruwanwella	5,049	185	3.7%
Bulathkohupitiya	2,814	151	5.4%

DSD	Total Population above 4 Years	No schooling	%
Yatyanthota	6,649	355	5.3%
Deraniyagala	10,181	639	6.3%
Subtotal for Kegalle District	24,693	1,330	5.4%
Overall	306,496	8,832	2.9%

Table 36: Population of children and elders

DSD	Total population in impacted area	0-4	%	Over 60	%
Colombo	53,070	4,489	8%	5,554	10%
Kolonnawa	55,429	4,558	8%	6,386	12%
Kaduwela	51,978	3,682	7%	7,267	14%
Homagama	17,021	1,297	8%	2,256	13%
Seethawaka	29,044	2,405	8%	3,935	14%
Subtotal for Colombo District	206,543	16,431	8%	25,398	12%
Wattala	5,625	429	8%	694	12%
Dompe	32,116	2,547	8%	4,545	14%
Kelaniya	40,039	2,875	7%	4,989	12%
Biyagama	21,404	1,642	8%	2,459	11%
Subtotal for Gampaha District	99,184	7,493	8%	12,687	13%
Ruwanwella	5,488	439	8%	848	15%
Bulathkohupitiya	3,077	263	9%	468	15%
Yatyanthota	7,290	641	9%	1,059	15%
Deraniyagala	11,123	943	8%	1,657	15%
Subtotal for Kegalle District	26,979	2,286	8%	4,032	15%
Overall	332,705	26,209	8%	42,116	13%

Table 37: Number of industries in the impacted area

Type of Industries	Number of industries in the Basin Area			Total
	Colombo	Gampaha	Kegalle	
Mining & quarrying	1	271	4	275
Food beverages & tobacco	16	1,477	728	2,221
Textile, wearing, apparel & leather	42	1,446	282	1,770
Wood, wood production and furniture	23	490	158	670
Paper products and printing	10	208	49	267
Chemical, petroleum, rubber & plastic	19	447	74	540
Nonmetallic mineral products	1	1,590	17	1,607
Basic metal products, machinery & equipment's	5	2,108	19	2,132

Type of Industries	Number of industries in the Basin Area			Total
	Colombo	Gampaha	Kegalle	
Other manufacturing industries	6	7	238	251
Water works & supply	-	27	16	43
Overall total	122	8,071	1,584	9,777

Table 38: Number of commercial units in the impacted area

DSD	Retail shops	Restaurants	Textile & foot wear	Fish & vegetable	Dispensary & pharmacy	Wood & iron furniture	Electrical items	Grocery	Building material and paints	Liquor shops	Jewelry	Book & stationary	Motor vehicles spare parts	Other
Colombo	114	5	3	2	3	2	2	2	5	1	1	4	5	7
Kolonnawa	49	3	2	1	5	7	2	2	7	1	1	4	4	5
Kaduwela	42	3	2	0	2	4	2	2	6	0	0	3	3	3
Homagama	26	1	0	-	0	1	0	1	1	0	0	1	1	1
Seethawaka	30	2	1	-	1	3	1	1	5	0	0	2	1	1
Subtotal	261	15	9	3	12	16	8	7	24	2	3	13	14	18
Wattala	14	5	3	3	1	1	2	1	2	0	1	1	1	17
Dompe	107	24	31	8	7	10	12	10	18	2	4	10	10	285
Kelaniya	107	41	22	58	9	10	7	3	29	1	9	22	8	723
Biyagama	58	26	20	13	7	6	6	11	11	1	5	12	6	52
Subtotal	285	96	76	82	24	27	26	25	61	5	18	45	25	1,077
Ruwanwellala	12	4	2	5	1	1	1	2	3	-	1	1	1	37
Bulathkothupitiya	22	6	1	4	0	0	0	0	1	-	0	1	0	11
Yatiyanthota	27	4	8	1	2	1	0	1	1	-	1	1	-	21
Deraniyagala	67	5	7	3	1	4	3	-	3	-	2	5	3	102
Subtotal	129	18	17	12	4	6	4	3	8	-	4	8	5	170
Overall total for the basin	675	128	102	98	40	49	38	35	93	7	25	66	44	1,265

Annex 2

List of consultations with the stakeholder organizations and communities

	Name	Designation	Institution	Gender
1	Dr. N.S.Wijayaratne	DGM-Wetland Management	Sri Lanka Land Reclamation & Development Corporation	Male
2	Mr. I.L. Ziyaroun	Civil Engineer	Sri Lanka Land Reclamation & Development Corporation	Male
3	Mr. Ananda Munasinghe	AGM-Planning & Development	National Water Supply and Drainage Board	Male
4	Mr. A.T.L.P.Samarasinghe	Additional Secretary - Technical	Ministry of Transport and Civil Aviation	Male
5	Mr. D.A.Samarakoon	Director (Planning)	Ministry of Provincial Council and Local Government	Male
6	Mr. K.A.D.Chandradasa	Additional Director General (Projects)	Urban Development Authority	Male
7	Mr. K.Amaraweera	Additional Director General-Project/Director-Planning	Road Development Authority	Male
8	Mrs. N. Siyambalapitiya	Additional Director General-Project/Director-Planning	Road Development Authority	Female
9	Ms. K.S.Dilshani	Divisional Secretary	Divisional Secretariat, Seethawaka	Female
10	Ms. A.D.Y Anandani	Divisional Secretary	Divisional Secretariat, Kaduwela	Female
11	Mr. D.L.Nandasena	Divisional Secretary	Divisional Secretariat, Padukka	Male
12	Mr. D. Edirisinghe	Divisional Secretary	Divisional Secretariat, Sri Jayawardhenapura	Male
13	Ms. B.T.Karunasena	Divisional Secretary	Divisional Secretariat, Maharagama	Female
14	Mr. A. Sugath Sirikumara	Divisional Secretary	Divisional Secretariat, Kolonnawa	Male
15	Ms. B.T.Karunasena	Acting Divisional Secretary	Divisional Secretariat, Homagama	Female
16	Mr. D.P.Wickremasinghe	Divisional Secretary	Divisional Secretariat, Colombo	Male
17	Ms. Chandima Sooriyarachchi	Divisional Secretary	Divisional Secretariat, Biyagama	Female
18	Ms. H.G.J.P.Wijeyasiriwardena	Divisional Secretary	Divisional Secretariat, Dompe	Female
19	Ms. Pubudika S. Bandara	Divisional Secretary	Divisional Secretariat, Kelaniya	Female
20	Ms. Sumudu Priyadarshani	Assistant Divisional Secretary	Divisional Secretariat, Wattala	Female

	Name	Designation	Institution	Gender
21	Ms. J.M.Ramya Jayasundara	Divisional Secretary	Divisional Secretariat, Bulathkohupitiya	Female
22	Ms. I.K.R.S.Bandaramenike	Divisional Secretary	Divisional Secretariat, Deraniyagala	Female
23	Mr. D.Saman Anura	Divisional Secretary	Divisional Secretariat, Yatiyantota	Male
24	Mr. A.M.Faizal	Divisional Secretary	Divisional Secretariat, Aranayake	Male
25	Mr. U.P.Anuruddha Piyadasa	Divisional Secretary	Divisional Secretariat, Dehiovita	Male
26	Ms. H.R.Nalika Piyasena	Divisional Secretary	Divisional Secretariat, Kegalle	Female
27	Mr. Indika Liyanage	Divisional Secretary	Divisional Secretariat, Ruwanwella	Male
28	Mr. K.G.S.Nishantha	Divisional Secretary	Divisional Secretariat, Galigamuwa	Male
29	Mr. L.D.Tennakoon	Divisional Secretary	Divisional Secretariat, Warakapola	Male
30	Mr. Vajira Kamburugamuwa	Director	National Secretariate for persons with disabilities	Male
31	Mr. M.K.Bandula Harischandra	-	Ministry of Social Empowerment and Welfare	Male
32	-	Director - Information	Department of Samurdhi	Male
33	Ms. Urani Wickremasinghe	Information Officer	National Committee on Women	Female
34	Eng. S. Mohanrajaha	Director General	Department of Irrigation	Male
35	Ms. Ashoka Alawatta	Secretary	Ministry of Women and Child Affairs	Female
36	Ms. Mangalika Gunathilake	Fish Seller	Cannal Road, Hendala, Wattala	Female
37	Mr. Nuwan Tennakoon	Fisherman	Lansiyawatta, Hendala, Wattala	Male
38	Mr. K.U.D.Amila	Fisherman	Lansiyawatta, Hendala, Wattala	Male
39	Mr. Ahamad Lebbe	Businessman	Ferguson Road, Mattakkuliya	Male
40	Ms. Devani Sarimuttu	House Wife	Ferguson Road, Mattakkuliya	Female
41	Ms. Siddhi Nawashiya	House Wife	Ferguson Road, Mattakkuliya	Female
42	Ms. M.G. Susanthi	Garment Worker	Biyagama Road, Pattiya	Female
43	Ms. T. Chithra	House Wife	Biyagama Road, Pattiya	Female
44	Ms. W.Rosalin	House Wife	Biyagama Road, Pattiya	Female
45	Ms. V.G.Gnanawathi	Businessman	Biyagama Road, Pattiya	Female
46	Ms. Suramyia Sarajeewa	Businessman	Biyagama Road, Pattiya	Female
47	Mr W.K.Randiva	Businessman	Biyagama Road, Pattiya	Male
48	Mr. D.D.Wasantha	Businessman	Kandawatta, Malwana	Male
49	Mr. Nirosch Weerasinghe	Businessman	Kandawatta, Malwana	Male

	Name	Designation	Institution	Gender
50	Mr. Kapila Kumara	Shop Keeper	Bategedara, Anhettigama	Male
51	Ms. A.G.Premawathi	Shop Keeper and Operator of a sand quarry	Bategedara, Anhettigama	Female
52	Mr. C.G.M.Wimalasiri	Sand Quarry Worker	Lathasewana, Anhettigama	Male
53	Mr. Indika Udayakumara	Sand Quarry Worker	Pahala Punchiwatta, Anhettigama	Male
54	Mr. D.K.Kumara	Sand Quarry Worker	Pahala Punchiwatta, Anhettigama	Male
55	Mr. S.A. Siripala	Disabled Person	Panakura, Anhettigama	Male
56	Mr. Chaminda Kumara	Shop Owner	New Bridge, Anhettigama	Male
57	Mr. P.A.Dayaratna	Retired Government Officer	Nakkawita, Deraniyagala	Male
58	Ms. K.G.Kumarihamy	House Wife	Malapola, Yatiyantota	Female
59	Mr. K. Indrasiri Kumara	Tea Grower	Malapola, Yatiyantota	Male
60	Mr. K.R. Rukman Gunawardhena	Taxi Driver	Malapola, Yatiyantota	Male