Section B

Recommended List of Research, Policy Studies and other Interventions

01: Water

Interventions	Reference
Policy Studies	
Formulation of regulations	
Controlling land erosion and sediment transport	1-2-I -a
Monitoring and management of sand mining in major rivers and streams	1-2-I-b
Managing point and non-point source of pollution of surface/ground water resources	1-2-II
Enforcing the existing laws for managing wastewater	1-4-I
Formulation of policies	
Reviewing and revising the existing policies on water for consistency	1-3-II-a
Introducing sector-wide water resources planning	1-3-II-b
Pure and Applied Research	
Surveys	
Assessing quality and quantity of surface water/ground water	1-1-I-a
Quantifying water use by urban, agricultural and industrial sectors	1-1-III-a
Assessing water quality deterioration due to floods	1-2-IV

Research	
Projecting water demand based on population increase, climate change and disasters (modelling approach)	1-1-I-b
Hydrological modeling to determine changes in runoff due to climate change	1-1-II-a
Treating water before entering to streams and rivers from agricultural lands	1-2-II-a
Assessing quality and health issues related to rainwater and reuse of wastewater	1-2-VI
Innovations	
Potential for using "reclaimed" water	1-1-IV-a
Interventions against saltwater intrusion and contamination	1-2-I
Generating energy from solid waste to avoid water pollution	1-2-III
Drainage improvements both regionally and locally to prevent water quality deterioration due to floods	1-2-IV
Low-cost house-hold rainwater harvesting systems	1-2-VI-a
Treatment of waste water for reuse	1-2-VI-b
Developing efficient treatment techniques for managing waste water	1-4-I
Popularization	
Conservation of water	1-1-V-a
Controlling deforestation for water conservation	1-1-V-b
Promoting rainwater harvesting, especially in dry zones	1-2-VI
Integrated Water Resource Management	1-3-I

Testing, Standardization and Accreditation	
Establishing water quality monitoring network	1-2-I-a
Development of standards for locating water supply wells and septic tanks	1-2-II
Assessing water quality for harvested rainwater and treated waste water	1-2-VI
Indigenous Knowledge and Intellectual Property Rights (IPR)	
Rehabilitating tank cascade system	1-2-IV
Research on Indigenous knowledge based water conservation and tank cascade management	1-3-I
Information and Communication Technologies (ICT)	
Centralized database on water quality, quantity, temporal changes and future predictions available to public	1-2-V
Capacity Building	
Strengthening existing institutional arrangements for water resources management	1-3-I-a
Establishing a water council including all stakeholders for better management and governance of water resources	1-3-I-b

02: Food, Nutrition and Agriculture

Interventions	Reference
Policy Studies	
Formulation of regulations	
Food advertisements	2-2-III
Adopting strict quarantine procedures to control of livestock diseases	2-7-VII
Formulation of policies	
Upgrading management of soil and nutrient erosion	2-1-III
Aquaculture	2-7-IV
Pure and Applied Research	
Surveys	
Assessment of national seed requirement	2-1-II
Demand and supply of crop based products	2-1-IV
Research	
High-yielding varieties tolerant to biotic and abiotic stresses	2-1-I-a
Conventional multiplication methods for development of new varieties of crops	2-1-I-b
Sustainable soil erosion control methods	2-1-III

Development of machinery suitable to local conditions	2-1-V
Development of water-conservation farming systems	2-1-VI
Nutrient contents of food and their functionality	2-2-I
Simple methods to identify food contamination and toxicities	2-2-II
Agrochemicals and their impact on human health	2-3-I-a
Methods to reduce toxicity in food crops	2-3-II-a
Food borne diseases and control measures	2-3-III
Improvement of indigenous varieties to compete with exotic species to promote eco-friendly agriculture	2-4-I
Cost effective farming systems using eco-friendly inputs	2-4-II
Bio pesticides & biologically active compounds	2-4-III
Identification of invasive species and control measures	2-4-IV
Proper marketing system for agricultural products	2-5-I
Low cost post-harvest processing methods	2-5-II
Traditional packaging materials and post-harvest technologies	2-5-III
Suitable captive breeding methods for high demand and endangered species	2-7-II
Natural diversity and density of fish (underutilized and unutilized fish stocks)	2-7-III
Study the impact of temperature and salinity on coastal aquaculture systems	2-7-IV-f
Suitable freshwater, brackish water and marine food fish varieties	2-7-IV-a
Development of high quality low cost feeds of aquaculture and mariculture using locally available material	2-7-IV-b

Algae species suitable for cultivation	2-7-IV-c
Development of temperature and salinity tolerant food fish species	2-7-IV-d
Identify impact of climate change on food for fish (freshwater brackish water and marine) and coastal aquaculture	2-7-IV-e
Development of value added products, safe and attractive packaging techniques to improve shelf life (i.e.: reduce post-harvest) and consumer attraction and demand for livestock production and fisheries	2-7-V
Improvement of local species in the diary industry	2-7-VI-a
Methods for improving quality and quantity of milk production	2-7-VI-b
Development of value-added products of aquaculture and mariculture	2-7-VI-c
Development of resistance breeds for outbreaks of livestock diseases	2-7-VII-a
Development of new vaccines for outbreaks of livestock diseases	2-7-VII-b
Identifying disease causing factors of livestock	2-7-VII-c
Development of improved breeds of livestock	2-7-VIII-a
Appropriate husbandry methods for livestock	2-7-VIII-b
New feed varieties (raw materials) for livestock	2-7-IX-a
Efficient pasture conservation and utilization methods	2-7-IX-b
Development of value-added milk products	2-7-X-a
Utilization of byproducts of animal	2-7-X-b
Applications of Biotechnology	
Identifying suitable fish species for local conditions	2-7-IV-a

Developing disease resistant varieties of fish	2-7-IV-b
Innovations	
Community based soil erosion control methods	2-1-III
Cultivation systems with minimum water use	2-1-VI
Energy efficient post-harvest processing methods	2-5-II-a
Designing of efficient , low cost fishing gear and crafts	2-7-I-a
New and sustainable fishing methods/techniques	2-7-I-b
Development of value-added products (aquaculture, mariculture)	2-7-IV
Popularization	
Creating awareness among farmers on market needs, climate changes etc.	2-1-IV
Creating awareness on water conserve farming systems among farmers	2-1-VI
Creating awareness on nutritional quality and needs of food among the general public	2-2-I
Creating awareness among the general public on proper nutrition	2-2-III
Creating awareness among general public on food poisoning	2-3-III
Promoting use of indigenous eco-friendly agricultural species	2-4-I
Creating awareness on biological control of diseases among farmers and AOs	2-4-III
Creating awareness on control of competitive species among farmers	2-4-IV
Creating awareness on how to increase profits among farmers	2-6-I
Popularizing sustainable fishing	2-7-I

Testing, Standardization and Accreditation	
Maintaining the quality of meat and fish products	2-7-V
Capacity Building	
Train AOs on new methods to minimize use of chemical inputs	2-1-III
Train AOs on assessment systems of national seed requirement	2-1-IV
Train farmers on use of machinery	2-1-V
Train farmers on post-harvest handling and processing	2-5-I
Develop capacity for marine fishing	2-7-I
Development of infrastructure with facilities for culturing marine fish in captivity	2-7-II
Development of infrastructure and training relevant to Aquaculture	2-7-IV
Development of accredited laboratories for testing of products and toxicity studies	2-7-V-a
Development of mechanized systems for loading, unloading, transporting, postharvest handling, processing,	2-7-V-b
Information and Communication Technologies (ICT)	
Database on market information to identify the market needs/climate/nutritional requirements	2-1-IV
Developing databases to supply market information system for agricultural products	2-5-I
Developing information channels/databases etc. to communicate farmers' clusters	2-6-I
Indigenous Knowledge and Intellectual Property Rights (IPR)	
Producing bio-pesticides using Indigenous Knowledge	2-4-III
Use of traditional knowledge in postharvest handling	2-7-V

03: Health

Interventions	Reference
Policy Studies	
Formulation of policies	
Develop the relevant policies and establish a credible regulatory body for Ayurveda/herbal medicines	3-5-III
Establishment of a National Bio-ethics Authority with wide ranging regulatory powers.	3-9-I
Establishment of a Governing Mechanism and Policies for accessing the National Genome Centre and the National Genome Data Repository	3-9-IV
Pure and Applied Research	
Research	
Development of mathematical models to better understand disease epidemics	3-3-I
Herbal clinical product development through clinical research - crude form, fractional form and single molecular level	3-5-V
Research on immune epidemiology of Dengue infections in order to understand dengue transmission dynamics and immune correlates of protection in implementing Dengue vaccines	3-6-I-i- a
Production of high quality dengue specific monoclonal antibodies and virology reagents for research and diagnostics	3-7-I
Study the interventions -: Tobacco use ,Reducing underweight in young children, Reversing obesity, Minimizing alcohol induced aggressive behavior, Improving school performance	3-8-I
Recruit national cohort at birth and early adult hood and track long term changes in health status, disease and their determinants	3-11-I
Conducting a comprehensive study to map the genetic diversity of the Sri Lankan population	3-9-IV

Applications of Biotechnology	
Establishment of a fully equipped National Genome center	3-9-II
Applications of Nanotechnology	
Drug development using Nano-technology	3-6-I-iv
Innovations	
Establishing a National Health Systems Research Centre cum Health Observatory	3-1-I-a
Identifying priorities for study (e.g.. palliative care for terminally ill - Monitoring access and equity related data)	3-1-I-b
Study the feasibility of providing integrated 'western' and Ayurveda care in a carefully selected list of conditions in which such potential is identified	3-1-I-c
Development of low cost diagnostics glucometers, simple population screening diagnostic tools for NCDs sleep study diagnostics	3-2-I-b
Establishing a central mechanism for developing, validating and marketing such devices Develop a urinary biomarker for CKDu	3-2-II
Development of low cost complementary food for infants above 6 months and developing a social marketing mechanism for same	3-4-I
Reverse pharmacological approach and identified effective herbal medicines	3-5-V
Development of target specific isolation techniques to isolate and characterize biologically active therapeutic molecules from Ayurveda herbal extracts which are toxicity and time tested, and clinically verified.	3-5-VII
Larval control using innovative methods (e.g. nanotechnology, biotechnology, biological control)	3-6-I-i-a
Use of new and existing techniques to understand vector biology in order to understand transmission dynamics of Vector-borned Diseases (VBDs) and to coordinate these activities by a dedicated centre/institute	3-6-I-i-b

Develop novel, rapid, easy- to- use, diagnostic methods (e.g. saliva based tests, dip-stick tests, finger-prick methods) for diagnosis of Leishmaniosis, Japanese Encephalitis (JE) and Malaria	3-6-I-ii-a
Immunoassays: To identify biomarkers or prognostic markers for Vector Borne Diseases(VBD)	3-6-I-ii-b
Understanding the pathogenesis of common VBDs such as Dengue, Leishmaniosis, JE so that already existing drugs could be used in the treatment of these diseases (e.g. many existing drugs that are used for other diseases can be effectively utilized for treatment of dengue if we can determine the mediators that cause severe disease, liver injury etc...)	3-6-I-iv
Development and of vaccine candidates for rabies	3-7-I-i-a
Production of monoclonal antibodies for snake venom.	3-7-I-i-b
Improvement of currently clinically failed vaccines (e.g. malaria) using a newly established proteomics technique	3-7-I-ii-c
One-pot neutralization technique for hydrogen peroxide based disinfection.	3-7-I-ii-a
Use of antioxidants as potential anti-aging agents targeting mitochondrial dysfunctions and biochemical changes associated with ageing.	3-10-I-a
Use of antioxidants as agents preventing mitochondrial DNA damages associated with ageing.	3-10-I-b
Develop a mechanism to award competitive grants for research into the aspect of Sri Lanka's achievements are largely unknown or unappreciated in the global community, and not well understood even in Sri Lanka	3-12-I
Popularization	
Studying cost benefit of Human Papilloma Virus (HPV) vaccine in high risk groups	3-2-I-a
Identifying molecular markers Validating model /marker in high risk populations.	3-2-I-b
Validation of drugs/Drug regime as per prioritized schedule	3-5-I-a
Standardization of raw materials and drugs	3-5-I-b
Setting up testing facilities for herbal drugs	3-5-I-c

Validation and Standardization of services (Physical environment of service providing Institutes, HR and other facilities)	3-5-IV
Authentication of herbs , minerals and other ingredients in formulas of current Ayurveda pharmacopeia	3-5-V-a
Develop standards for finished products (Ayurveda pharmacopeia)	3-5-V-b
Indigenous Knowledge (IK) and Intellectual Property Rights (IPR)	
Identify Ayurveda/ herbal recipes with potential and further develop them and progress to clinical trials Establishing a web based National Cancer Registry	3-2-III-a
Development of topical anti-oxidant preparations from herbal ingredients for the prevention of oral and pharyngeal cancers	3-2-V-b
Research into ancient texts and oral traditions in the country in order to identify or recognize other forms of treatment.	3-5-II
Information and Communication Technologies (ICT)	
Satellite images (Methods to better understand disease epidemics that should include data from a range of sources (e.g. spatial data) and novel methods of analyses)	3-3-I-a
Risk mapping (Methods to better understand disease epidemics that should include data from a range of sources (e.g. spatial data) and novel methods of analyses)	3-3-I-b
Establishing a mobile phone platform for advising Infant and Young Child Feeding practices	3-4-II
Preparation of comprehensive national level database for the country (With the help of the Dept. of National Archive, preserving the traditional medicinal knowledge as databases using high performance server facility.)	3-5-VIII
Use of GIS technology for understanding environmental factors contributing to VBD (Vector Borne Diseases) transmission	3-6-I-iii
Mobile phone based health information platform to disseminate health information	3-8-I
Establishment of a National Genome Data Repository	3-9-III
Cataloguing the prevalence of pharmaco gnomically important genetic variations in the Sri Lankan population	3-9-V

04: Shelter

Interventions	Reference
Policy Studies	
Improve and expand human settlement planning while promoting greater partnership between public sector, NGOs and the community	4-1-II
Improve urban and regional planning in a systematic and sustainable manner	4-2-IV
Incentive programmes for investors for social housing (to encourage private sector to invest in social housing)	4-2-V
Introduce new and more flexible tenure for social housing	4-2-VI
Pure and Applied Research	
Research into sustainable use of under-utilized lands for housing	4-2-I
Research on low-cost, energy efficient and easy to use building materials	4-3-I
Testing, Standardization and Accreditation	
Develop quality standards for building materials as well as shelter provided for low income groups	4-3-III
Capacity Building	
Establish a research Centre with knowledge management as a central point of contact for R&D relevant to shelter	4-1-III & IV
Enable community to involve in design, construction and management of housing projects trough awareness creation	4-2-II
Indigenous knowledge & Intellectual Property Rights (IPR)	
Research into local knowledge on building techniques and traditional building materials	4-3-III
Popularization	
Low cost housing construction materials developed by the public sector	4-2-III

05: Environment

Interventions	Reference
Policy Studies	
Formulation of policies	
Develop proper policies for mitigation of adverse effects of climate change	5-1-IV
Develop policies for disaster management	5-2-II
Develop policies and regulations to mitigate impacts of development projects on the environment	5-3-II-a
Develop policies and regulations to minimize human-wild life conflict	5-3-IV-a
Investigate the level of compliance by development projects to the regulatory environment imposed by relevant authorities	5-3-IV-b
Develop policies for sustainable use of bio diversity	5-3-VI-a
Develop benefits sharing mechanisms for sustainable use of bio diversity	5-3-VI-b
Develop policies for conservation and sustainable use of medicinal plants	5-3-VI-c
Formulate policies/regulations to protect eco-systems from the impacts of unplanned development processes	5-3-VII
Formulate new policies to regulate unplanned urbanization and industrialization	5-4-I-a
Develop strategies to implement urbanization and industrialization policies effectively	5-4-I-b
Develop policies for clinical waste management	5-4-IV
Review and upgrade Policies to manage hazardous waste	5-4-VII-a
Develop policies to control air and noise pollution and to mitigate transboundary pollution, paying due attention to international treaties	5-4-IX-a

Develop policies to prevent adverse air pollution leading to formation of smog	5-4-IX-b
Develop policies and regulations to minimize visual pollution in urban areas	5-4-XI
Formulate policies that promote adoption of international regulations such as those related to oil spills	5-4-XII
Formulation of regulations	
Develop regulations on air and noise pollution for industrial zones	5-4-IX-c
Surveys	
Identify lapses in implementation of existing regulatory measures in development projects	5-3-II-b
Social aspects related to threats on biodiversity	5-3-III
Awareness and attitudes among decision makers on conservation and sustainable use of Biodiversity	5-3-V
Island wide survey to identify clinical waste management practices used by hospitals and diagnostic laboratories	5-4-IV
Levels of air pollution in large cities and areas near industrial zones	5-4-IX-b
Pure and Applied Research	
Research	
Adaptation of existing methodologies for climate prediction	5-1-I
Create new models and downscale existing models for climate change predictions	5-1-II
Develop suitable adaptation measures for impacts of climate changes	5-1-III
Identification and development of adaptation technologies for disaster management	5-2-II-a
Mapping disaster-prone areas	5-2-II-b
Adverse effects on biodiversity due to climate change, pollution etc.	5-3-I-a

Develop methods of landscaping to enhance urban biodiversity	5-3-I-b
Quantification of exploitation level of biodiversity	5-3-I-c
Quantification of visitor and ecological carrying capacity of protected areas	5-3-I-d
Development of a computerized model to assess impacts of climate change on biodiversity	5-3-I-e
Environmental impacts of development projects	5-3-II-a
Sustainable use of biodiversity and eco-system services	5-3-VI-a
Bio indicators of pollution	5-3-VI-b
Species that can be used for eco-system restoration	5-3-VI-c
Identify, protect and propagate threatened species	5-3-VI-d
Level of bio accumulation of toxic matter	5-3-VI-e
Agro- biodiversity to exploit and enhance potential benefits	5-3-VI-f
Biodiversity in medicinal plants and their potential benefits	5-3-VI-g
Identify commercial importance of flora and fauna and possibility of ex-situ propagation and cultivation	5-3-VI-h
Causes and magnitude of degrading of eco-systems	5-3-VII-a
Methods of mitigation and restoration of degraded ecosystems	5-3-VII-b
Pollution due to urbanization and industrialization	5-4-I
Generating national solid waste management profile	5-4-II-a
Non-biodegradable waste to develop resource recovering technologies	5-4-II-b
Identify and promote plant species with special reference to economic values that can be used to minimize sedimentation (e.g.	5-4-V-a

Pandanus) in inland water bodies	
Assess assimilation capacity of waste in the environment	5-4-VI-a
Assess industrial waste load in water bodies	5-4-VI-b
Develop Models to predict water pollution levels due to industrial plants	5-4-VI-c
Effects of air pollution and noise pollution on human health	5-4-IX-a
Assess the levels of transboundary pollution and identify methods to mitigate	5-4-IX-c
Review previous studies on formation of smog and its hazardous effects to find mitigatory measures	5-4-IX-e
Develop models to predict and illustrate air pollution and noise pollution due to urbanization and industrialization	5-4-IX-f
Health issues related to visual pollution	5-4-XI-a
Develop technologies to remove oil spills	5-4-XII-a
Develop models to illustrate and assess damages of oil spills	5-4-XII- b
Innovations	
Adaptation of existing technologies for disaster management (e.g. Rainwater harvesting technology as a preparatory measure for drought)	5-2-II
Mitigatory measures to reduce impacts of development on biodiversity	5-3-II
Technologies for utilization of biodegradable waste to facilitate waste management	5-4-II-a
Technologies for biogas generation	5-4-II-b
Technologies for resource recovery from non-bio degradable waste	5-4-II-c
Environment friendly sewage/sludge management techniques	5-4-III

Cost effective technologies for clinical waste management	5-4-IV
Technologies to prevent sedimentation and eutrophication in inland water bodies	5-4-V
Low cost waste treatment methods for industries	5-4-VI-a
Affordable central waste treatment facilities for domestic and industrial waste management	5-4-VI-b
Low cost ground water treatment methods	5-4-VI-c
Low cost waste treatment methods for e-waste and nulear waste management	5-4-VII-a
Recycling methodologies to manage e-waste and nuclear waste	5-4-VII-b
Technologies for hazardous waste management	5-4-VII-c
Environment sustainable products and technologies such as 'Green Technology"	5-5-I
Testing, Standardization and Accreditation	
Pay special attention to clinical waste management when accrediting diagnostic laboratories	5-4-IV
Accredit emission treatment processes used in industries	5-4-IX
Accredit the processes of development of environmental sustainable products	5-5-I
Indigenous Knowledge and Intellectual Property Rights (IPR)	
Promote Indigenous knowledge based biodiversity conservation and management	5-3-VI-a
Development of a database of climate data	5--1-I
Establish a database of sea level rise, shoreline retreat, salinity, acidity and temperature based on regularly collected data	5-1-II-b
Development of a database on available information on natural and man-made disasters	5-2-I
Capacity Building	

Train individuals for accurate climate prediction and natural and man-made disaster management	5-1-I & 5-2-II
Train individuals for treatment of industrial & domestic waste and hazardous waste management	5-4-VI & VII
Conduct awareness programs for e-waste collectors on hazardous effects of e-waste	5-4-VIII
Train individuals to remove oil spills	5-4-XII
Popularization	
Create awareness among people on adaptation measures to climate change	5-1-III
Create awareness among people on mitigation of impacts of climate change	5-1-IV
Conduct awareness programs on disaster preparedness for all stakeholders including people prone to natural disasters	5-2-II
Create awareness among general public on threats to biodiversity due to pollution, deforestation and invasive species	5-3-I
Conduct awareness programs on biodiversity among decision makers	5-3-V
Conduct awareness programs/campaigns on sustainable use and benefits of biodiversity and medicinal plants for relevant authorities and industries	5-3-VI
Create awareness on proper solid waste disposal, compost preparation, utilization of bio degradable waste	5-4-II
Awareness campaigns for relevant stakeholders on clinical waste management	5-4-IV
Create awareness on hazardous waste	5-4-VIII
Create awareness on air pollution and noise pollution (origin, impacts, mitigation, regulations etc.)	5-4-IX and X
Create awareness on visual pollution	5-4-XI
Create awareness on environment sustainable technologies	5-5-I

06: Energy

Interventions	Reference
Policy Studies	
Formulation of policies	
Incorporating relevant research outputs in RE for transport applications	6-4-III-b
Renewable Energy (RE) Road map with long term targets	6-1-I
RE technology for the development of transport sector road map	6-4-III-a
Land-use planning for promotion of biomass	6-6-I
Introduction of mechanisms for the promotion of low energy-intensity products and processes in the industrial and commercial sectors	6-10-I
Development of transport sector master plan promoting less energy-intensive public transport systems	6-12-I
Promotion of supply- demand management in transport system using ICT	6-12-II
Promotion of Non-Motorized Transport (NMT)	6-12-III
Develop guidelines and planning tools to establish Energy Efficient (EE) townships/ urban communities	6-13-I
Formulation of regulations	
Energy labelling regulations to control marketing of energy inefficient household appliances	6-9-II
EE building envelops (both existing and new)	6-10-II
Fuel economy standards for road vehicles	6-12-I
Pure and Applied Research	

Surveys	
Geophysical surveys (gravity, gravity gradiometric, magnetic, seismic) related to local fossil fuel resource availability	6-1-II
Introduce pricing mechanisms / incentive schemes for demand peak clipping and valley filling, electric vehicles (EV) charging and discharging, and other 'demand side management' (DSM) initiatives.	6-14-I
Research	
Development of RE resource maps, inventory and roadmaps	6-1-I
Design and development of efficient biomass cook stoves (both direct combustion and gasification)	6-3-I
Development of technologies for fuel preparation, conversion and emission control for high-temperature industrial applications	6-3-II
Design & Optimization of solar air heaters and biomass driers for low-temperature industrial applications (e.g. drying/dehydration for agricultural products)	6-3-III
Modern high efficient biomass energy conversion technologies for commercial and industrial applications	6-5-I
Development of sustainable plantation management techniques with high productivity for sustainable supply of biomass for generation of RE	6-6-I
Feasibility study and design of pump storage systems for large-scale grid electricity storage	6-7-I
Design and optimization of national grid with mix of central and distributed generation system for grid integration of RE	6-8-I-i
Advanced supply & demand forecasting tools for optimum grid integration of RE	6-8-I-ii
Development of dynamic modelling tools for optimum electricity dispatch for grid integration of RE	6-8-I-iii
Design and develop energy efficient lighting products and appliances locally	6-9-I-i
Design and develop energy efficient LPG stoves and burners	6-9-I-ii

Formulation of criteria for the estimation of energy performance of appliances	6-9-II
Develop waste heat recovery and utilization systems	6-10-II-i-c
Develop energy performance rating schemes for buildings	6-10-II-ii-a
Explore innovative concepts for enhancement of energy performance of buildings	6-10-II-ii-b
Design, optimize and introduce waste-heat recovery and utilization systems for power plants	6-11-I
Develop representative driving cycles covering strategic regions	6-12-I-i
Impact assessment of public transport modes on fuel economy and other socio-economic aspects	6-12-I-ii
Impact assessment of non-technical options such as supply - demand management interventions on fuel economy and other socio-economic aspects related to transport sector	6-12-II-i
Impact assessment of NMT on fuel economy and other socio-economic aspects	6-12-III
Applications of Biotechnology	
Application of biotechnology for fuel wood plantations	6-6-I
Innovations	
Small hydro and wind power systems using locally developed outfits for electricity generation	6-2-I
Introduce innovative concepts / configurations for better performance of solar and biomass dryers	6-3-III
Introduce biofuels (Biodiesel, Ethanol, Biogas) for transport applications	6-4-I
Introduce solar, wind, small-hydroelectricity based charging stations and networks to promote use of electric/hybrid vehicles	6-4-III
Introduce advanced battery technologies for medium and small scale grid energy storage	6-7-II

Introduce innovative concepts for optimum electricity dispatch in grid-integration of RE	6-8-I
Introduce innovative approaches for formulation of driving cycles	6-12-I-i
Introduce innovative approaches in integrating mass /transport systems to present infrastructure	6-12-I-ii
Introduce innovative approaches for supply- demand management in transport	6-12-II-i
Introduce innovative concepts for best integration of NMT in present transport sector	6-12-III-i
Popularization	
Improved/efficient biomass cook stoves	6-3-I
Dissemination of information on RE resources	6-3-II
Processing of agricultural and food products using RE resources (solar air collectors and biomass driers)	6-3-III
Sustainable fuelwood plantation techniques	6-6-i
Energy efficient appliances in the domestic sector	6-9-II
Energy efficient buildings	6-10-II
Fuel efficient vehicles	6-12-I
Non Motorized Transport modes	6-12-III
Testing, Standardization and Accreditation	
Development of code of practice for solar and biomass dryers	6-3-III
Development of standards for sustainability criteria for bioenergy	6-6-I
Testing standards and accreditation of testing facilities for energy-efficient household appliances	6-9-II

Certification and accreditation of EE / green building consultants	6-10-II
Development of testing procedures and accreditation of chassis dynamometer testing facilities	6-12-I
Indigenous Knowledge (IK) and Intellectual Property Rights (IPR)	
Study on traditional knowledge/ best practices of solar and biomass drying technologies	6-3-III
Exploration and adaptation of indigenous plantation management techniques	6-6-I
Exploration of EE building concepts used in traditional buildings	6-10-II
Information and Communication Technologies (ICT)	
Integration of ICT for resource measurements and mapping (hydro, wind, solar and biomass)	6-1-I
Effective use of ICT for optimum electricity dispatch in grid-integration of RE	6-8-I-iii
Use of ICT for optimum utilization of public/ mass transport systems, paying due attention to EE and fuel economy	6-12-I & II
Capacity Building	
Modelling/simulation of development of RE technology	6-1-I & 6-3-II
Design, fabrication and operation of solar and biomass dryers	6-3-III
Sustainable plantation management techniques	6-6-I
Dynamic modelling and optimum electricity dispatch for grid integration of RE	6-8-I
Provide training programmes on EE building designs	6-10-II

07: Mineral Resources

Interventions	Reference
Policy Studies	
Formulation of policies	
Formulation of a national policy for mineral resource exploitation and product development	7-3-II
Pure and Applied Research	
Compile information on the available resources on Sri Lanka's continental shelf	7-1-I-a
Preparation of marine geological and geophysical maps	7-1-I-b
Conduct airborne geophysical survey	7-2-II
Develop products such as graphene and nanomaterials as value addition to graphite	7-3-I-a
Develop Thorium-fueled liquid fluoride reactor using local Thorium resources	7-3-I-b
Investigate the possibility of establishing a Montmorillonite purification pilot plant	7-3-I-c
Synthesize precipitated Calcium carbonate	7-3-I-d
Investigate the possibility of intercalation of Li, Na and Fe into Sri Lankan natural vein graphite	7-3-I-e

08: Textile and Apparel

Interventions	Reference
Policy Studies	
Formulation of regulations	
Develop an IP policy & strategy for textile and apparel industry	8-1-I-iii
Develop a funding policy to support textile and apparel research	8-1-I-iv
Pure and Applied Research	
Research	
Emerging markets and branding	8-2-I-ii
Market research on suitable branding strategy based on Sri Lankan identity and its core strengths	8-2-I-iv
Fashion trends & forecasting	8-3-I-i
Enhance anthropometric knowledge to identify variations in anthropometric dimensions in designing apparels	8-5-I-v
Value added materials such as Cosmeto Textiles using local raw materials	8-6-I-i
Emerging fibers such as bamboo and banana	8-6-I-vii
Sustainable/renewable fibers/materials	8-6-III-iii
Methods for improving machine efficiency and productivity	8-7-II-v
Machine modifications specifically aiming at energy cost reduction	8-7-II-vii
Attachments or computerized programmable rigs to assist machine set up for handloom industry	8-7-V-ii

Redesign of equipment to produce value added materials such as technical textiles	8-7-V-iii
Use alternative energy sources to operate looms	8-7-V-ix
Develop machinery and structures with ability to pre-stress for compression characteristics	8-8-I-i
Cost effective complete garment with seamless knitting using pre-dyed and finished yarn	8-8-I-v
Develop natural dyeing and finishing	8-9-IV-xiii
Different applications of technical textile structures including structural composites, thermal and acoustical isolation, filtration and separation, liquid management, biological applications and non-structural mechanical properties	8-10-I-i
Protective textile and apparel	8-10-I-ii
Functionalization of textile structures that are in contact with a living environment (bacteria, proteins, etc.), either for antibacterial purposes or for the delivery of drugs and medicines.	8-10-I-iii
Low cost / sustainable energy sources optimized for T&A industry	8-12-I-i
Machine improvements to reduce energy consumptions	8-12-I-ii
Low energy manufacturing models	8-12-II-iii
Applications of Nanotechnology	
Develop textile & surface design techniques	8-3-III-iii
Develop new mechanisms for textile development	8-4-IV-iii
Promote Nano technological knowledge in production of Nano materials & processing technologies suitable for apparel and textile	8-6-IV-xiii
Promote Nano technological knowledge in production of Functional Fibers and Polymers	8-6-IV-ix
Develop cost effective production methods of nano fibres for technical textile applications	8-10-I-x

Develop nano coating for fibrus surfaces	8-10-I-xi
Develop nano conductive materials for medical & smart textiles	8-10-I-xii
Innovations	
Develop efficient alternative methods to traditional cut and sew method	8-4-I-i
Develop efficient detachable/ dis-assembly methods for apparels	8-4-II-v
Utilize biomechanical knowledge when developing active wear	8-4-IV-iv
Develop efficient product development methods	8-4-VI-vi
Develop efficient sampling processes	8-4-VII-vii
Develop radio frequency identification systems for cost effective inventory tracking and defect identification	8-5-II-iii
Develop new methods of recycling & regenerating textile materials.	8-6-IV-iv
Develop new methods of re-cycling polyester fiber / fabric waste & blended materials.	8-6-IV-v
Develop new methods of production sustainable natural fibers and regenerated fibers based on agricultural waste such as banana, pineapple, plant materials	8-6-IV-vi
Develop information portal to cater fabric and garment formation through seamless knitting	8-8-I-iv
Initiate knitting technology and 3D shapes for technical textile applications such as medical and smart textiles	8-8-II-ii
Develop water-less dyeing techniques	8-9-I-ii
Popularization	
Exploit and popularize new markets	8-2-I-ii
New SL brands for the identified international markets	8-2-II-iv

Design-incubators and promote new Sri Lankan brands	8-3-III-iv
Green technology for textile & apparel industry	8-12-II-iv
Testing, Standardization and Accreditation	
Testing standards for regulative clothing that adjusts certain parameters, such as temperature or ventilation	8-10-I-iv
Indigenous Knowledge and Intellectual Property Rights (IPR)	
Promote usage of lean technologies based on indigenous knowledge and such other knowledge streams	8-5-II-vi
Promote Indigenous knowledge in production of eco-friendly and bio-based fiber	8-6-I-ii
Modify existing machinery to suit varied & diverse needs	8-7-I-i
Develop finishes using locally available indigenous/herbal materials	8-9-II-iii
Information and Communication Technologies (ICT)	
Develop new business models using ICT	8-2-I-i
Setting up data portal to provide information to the stakeholders	8-2-II-iii
Develop personalized products using CAD / virtual prototyping	8-3-IV-ii
Develop design software to enhance embellishment techniques and capability	8-3-V-v
Develop software for 3D modeling	8-4-III-ii
Develop models to simulate the garment manufacturing process and seam engineering	8-5-I-iv

Develop automated production & material handling mechanisms	8-5-II-i
Develop a database for the handloom industry	8-7-V-iv
Develop computerized systems for controlled knitting, designing and shaping	8-8-II-iii
Develop computer aided techniques for colour matching and dyeing	8-9-IV-v
Develop information system or portal for on-line inspection of fabric quality	8-9-IV-vii
Develop information system as assistant for clothing that have a memory, store information and carry out complex calculations	8-10-I-vi
Develop electronic components that are washable and durable and safe for on-body application	8-10-I-vii
Develop smart fibre based monitoring systems	8-10-I-ix
Develop information portal to cater to seamless fabric and garment making	8-11-I-iv

Capacity Building	
Introduce subjects on key strategic R&D fields in undergraduate and post graduate studies and research related to textile and apparel industry	8-1-I-i
Establish a R&D and Innovation coordination center for textile and apparel industry	8-1-I-ii
Develop partnerships with foreign universities to facilitate knowledge sharing	8-1-III-v
Conduct training programs on 3D weaving to achieve conformable shapes for technical textiles	8-7-V-vi
Conduct training programs on pre-treatment and dyeing techniques aiming low water and energy consumption	8-9-I-i

09: Information and Communication Technology and Knowledge Services

Interventions	References
Policy Studies	
Formulation of policies	
To encourage the IT/Business Process Outsourcing (BPO) sector	9-1-II-ii
To encourage Datafication	9-2-I-i
To encourage Big Data Analysis	9-3-I-i
To encourage and expand the Portfolio Analysis	9-5-I
To encourage and expand the applications of Bioinformatics	9-6-I
To encourage and expand the use of Mathematical Solutions	9-7-I
To encourage Geophysical Data Processing	9-7-I
To encourage Architectural CAD Designing	9-7-I
To encourage On-line-Legal Services	9-8-I
To encourage On-line-Tutoring	9-8-I
Popularization	
Datafication and its applications among the community	9-2-II
Emerging trends in ICT (Cloud Computing, The Internet of Things and Smart Systems, 3D Printing etc.) among the community	9-4-I

Capacity Building	
Identify the gap between industry needs and skill levels of graduates and bridge the gap by introducing subjects catering to industry needs	9-1-I
Training programs on datafication and its applications	9-2-II
Training programs on mathematical solutions	9-7-I
Training programs on geophysical data processing	9-7-I
Training programs on architectural CAD designing	9-7-I

10: Basic Sciences, Emerging Technologies and Indigenous Knowledge

Interventions	Reference
Policy Studies	
Formulation of policies	
Recognize the importance of basic sciences and funding for research on basic sciences	10-1-I-a
Facilitate collaborative basic science research with reputed foreign research institutes to bring up to date knowledge to the country through special scholarship programs for postgraduate studies and postdoctoral work	10-1-II-b
Encourage industries to fund basic science research by providing tax benefits	10-1-VI-e
Encourage industries for value addition to local minerals	10-2-I-a
Promote industries that produce high-tech products such as silicon chips	10-2-I-b
Protect and utilize Indigenous Knowledge	10-3-I
Pure and Applied Research	
Encourage research on IK	10-3-II
Promote use of remotely sensed satellite data for research (e.g.: identifying fishing grounds, studying meteorological parameters, etc.)	10-2-II
Innovations	
Incorporate ‘Green technology’ in agriculture	10-3-II

Popularization	
Promote the fusion of IK with modern technologies	10-3-II
Testing, Standardization and Accreditation	
Accreditation of Indigenous medicinal products	10-3-II-a
Develop standards to practice indigenous medicine	10-3-II-b
Information and Communication Technologies (ICT)	
Develop an on-line directory on S&T personnel in the country	10-2-I-a
Capacity Building	
Strengthen existing research institute(s) mandated to carry out fundamental research to focus on fundamental research	10-1-II-a
Establish state-of-the-art national equipment Centre(s)	10-1-V
Establish a central station for training technicians/instrumentation experts to handle and repair equipment	10-2-I-c
Establish “Science and technology knowledge transfer and information unit” linking universities and R&D institutes with facilities for commercialization of research under the relevant line ministry	10-2-II-b
Develop an adequate human resource pool for relevant Emerging Technology Sub-areas by providing incentives, scholarships, advanced training, etc. and establish a mechanism to use their knowledge	10-2-V-a