



GOVERNMENT OF ST. CHRISTOPHER & NEVIS
UNITED NATIONS CONVENTION ON BIODIVERSITY
FIFTH NATIONAL REPORT

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Executive Summary

The Fifth National Report on the implementation of the Convention on Biological Diversity in the Federation of St. Christopher (St. Kitts) and Nevis will provide a valuable source of information for the mid-term review of progress towards the implementation of the Strategic Plan for Biodiversity 2011-2020. The Report also examines the progress that the Government of St. Kitts and Nevis (GSKN) has made towards the National Biodiversity Targets and the Mainstreaming of Biodiversity Conservation into National Development.

As a communication tool, the Report will provide the GSKN with strategic policy direction in relation to BDC and wider environmental management. At the regional and international levels, the information from the Report will be essential to the successes of the Strategic Plan and the Convention as a mid-term review and decisions to be made on that basis will boost CBD implementation.

The preparation of the Report was informed in part by guidelines prepared by the Secretariat and is presented in three parts. Part I provides an update on the state of biodiversity in SKN. A summary of ecosystem services, biological resources and the social benefits that SKN biodiversity provides is included. It looks also at trends in biodiversity, threats and challenges to conservation interventions at the national level and the associated livelihood implications.

The Report highlights that, in the context of SKN, the main forces that adversely impact biological diversity are related to the following: demographic changes; socioeconomic factors; market based factors; policy framework; and built developments. Approximate causes for biodiversity loss, the associated threat levels, and the consequences of biodiversity changes have been discussed.

Importantly, Part I of the Report indicates that the GSKN has been promoting sustainable development in a holistic and integrated manner by addressing the following thematic areas.

- i. Poverty reduction
- ii. Agricultural diversification
- iii. Environmental management
- iv. Water resources management
- v. Land use planning
- vi. Housing and infrastructure development
- vii. HIV/AIDS and other health issues
- viii. Climate change
- ix. Land degradation
- x. Biodiversity conservation

This is in recognition of the fact that:

- (i) Environmental and developmental issues are cross cutting;
- (ii) Financial and technical resources are scarce; and
- (iii) Interventions have to be mutually dependent if optimal results are to be achieved.

Part II provides a summary of the twelve National Targets as directed by the Global “Aichi Targets”, which were adopted in 2010 under the *Convention on Biological Diversity’s 2011-2020 Strategic Plan*. It includes a brief performance review of the 2004 NBSAP and an assessment of how the ‘new’ NBSAP differs from the previous edition. Specific focus has been placed on key interventions and outcomes. Indicators that should help to promote greater efficiencies in BDC have been included.

This section of the Report addresses the mainstreaming of BDC into national development. Here the focus has been on the guidelines for mainstreaming that were prepared as part of the revision of the NBSAP. The themes and sectors addressed here include:

- Poverty reduction;
- Agriculture and rural development;
- Environmental protection;
- Land degradation;
- Water resource management;
- Marine resources management;
- Land use planning, and infrastructure;
- Gender; and
- Climate change.

Part III draws upon the information provided in Parts I and II and analyses how national actions taken to implement the Convention are contributing to relevant strategic goals and the Aichi Biodiversity Targets of the updated Strategic Plan for Biodiversity 2011-2020. It examines how the implementation of the Strategic Plan has contributed and is contributing to the achievement of relevant goals and targets included in the Millennium Development Goals.

Apart from fulfilling the Country/Party obligations to the Secretariat, the preparation of Fifth National Report is an important opportunity for communicating achievements made in meeting the Convention objectives to the general public and involving them in national implementation. To this end, in addition to involving stakeholders in the preparation of national reports, it is particularly important for Parties, after having submitted their national report, to communicate to the general public the positive outcomes for biodiversity identified in the report, as well as the obstacles and challenges that remain.

While significant progress has been made with regards to the implementation of CBD, there remain significant gaps especially with respect to biodiversity data coverage in SKN. The following are key toward closing the gaps and removing constraints:

- i. Research – There is a need to undertake further research to fully understand the impacts of the loss of genes and species on the normal functioning of ecosystems in SKN.
- ii. Assessment – There is a need to fully assess the biodiversity of SKN with a goal to determine reference areas for preservation and to develop a predictive science of ecological management.
- iii. Guidance – There is a need to provide independent advice to government, the private sector, and the public, and provide a scientific basis for conservation and management of populations, communities and ecosystems.
- iv. Training – There is a need to train experts in identification and categorization of species.
- v. Education – There is a need to promote public understanding of issues related to biodiversity and the consequences of biodiversity loss.

The Report poses that various means of communication could be used, including but not limited to, publicly launching national reports on International Day for Biological Diversity; making national reports accessible to a wider audience (including all secondary and tertiary institutions of learning) through the recently launched EDUNET system and other national clearing-house mechanisms or other media; developing and disseminating by-products of national reports.

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Part I:

An update on biodiversity status, trends, and threats and implications for human well-being

Part I: An update on biodiversity status, trends, and threats and implications for human well-being

1.1 Biodiversity- An Assessment of its Importance at the National Level

The term biodiversity refers to the number of species of plants, animals, and microorganisms, and the numerous relationships that exist within the various ecosystems. While much of the fauna in St. Kitts and Nevis (SKN) mainly consists of introduced species, the natural flora is mostly endemic and diverse. Also, the coastal and marine biodiversity includes a rich variety of fish species; crustaceans; sea grass; mangroves; sea turtles, algae and several species of resident and migratory birds.

For a Small Island Developing State (SIDS) such as the Federation of St. Christopher (St. Kitts) and Nevis, with a limited exploitable natural resource base, the biological diversity is of extreme physical and socio-economic importance. The Federation's biodiversity performs essential ecological functions/services, provides resources and significant benefits to residents and visitors alike.

These include but are not limited to the following:

- **Ecosystem services:**

- Protection of water resources
- Soils formation and protection
- Nutrient storage and recycling
- Pollution breakdown and absorption
- Carbon sequestration
- Contribution to climate stability
- Maintenance of ecosystems
- Drought mitigation
- Recovery from unpredictable natural events



- **Biological resources:**

- Food & beverages
- Medicinal resources
- Wood products
- Ornamental plants
- Breeding stocks, population reservoirs
- Future resources
- Diversity in genes, species and ecosystems



- **Social benefits:**

- Research and development
- Education and monitoring
- Intellectual stimulation
- Recreation and tourism

- Cultural values

The biodiversity resources of the SKN have an important role to perform in the economic transformation process. This is even more critical given that the cost of replacing these (if possible) would be extremely expensive. It therefore makes economic and development sense to embrace and promote sustainable land management and wider sustainable development strategies at the national level.

1.2 Status and Trends

The assessment of the status of biodiversity in SKN was prepared as part of the revision of the NBSAP and involved the review of several national reports and management plans. Additionally, observations and conclusions from field investigations have helped to inform the contents of that status report. Several resource persons were interviewed also toward ascertaining impressions on the status of SKN's biodiversity.

The following is a summary of the main findings.

- i. Faunal species in SKN consist of native and migratory birds, reptiles, aquatic species and mammals. Migratory species are those which breed in other territories and migrate to habitats in SKN, mainly during the winter months. Bird watchers in SKN have given accounts of over 130 species (including migratory species).
- ii. Only a few mammal species exist in SKN, most of which were introduced. The African Green/Vervet Monkey was introduced by the French over 300 years ago as pets. Today it is estimated that the monkey population exceeds 50,000. Perhaps the most common mammals in SKN are bats.
- iii. There are several marine reptile species on SKN, some of which are regarded as endangered. These include the Green Turtle, Hawksbill and Leatherback. The Department of Fisheries and the St. Kitts Sea Turtles Monitoring Network have been working together to ensure that these species are conserved.
- iv. The Ground and Green Lizards are endemic and extremely common on the islands. Giant and Common Woodslaves also are quite prevalent.
- v. While snakes are not common in SKN, largely because of the introduction of the mongoose, they are known to exist. In the last several months there has been four reported snake captures in SKN.
- vi. As with the mongoose the Giant Toad was introduced in St. Kitts as an attempt to deal with a pest (grey backed cane beetles and rodents). The Browne Tree Frog is endemic to SKN and is cited mostly in moist forested areas. The Mountain Chicken or Crapaud also is believed to be native to SKN. There appears to be a resurgence of specie following the closure of the sugar industry, particularly in rural wooded areas.
- vii. Generally there is a lack of information on invertebrates in SKN. The invertebrate fauna, while greatly outnumbering the vertebrate animals in terms of number of species and orders, is only partially known.
- viii. Sponges and coral reefs are an integral part of the overall health of the marine environment. Coral reefs in SKN and the wider Caribbean are under threat due to

ocean pollution, land based sources of pollution, sand mining, over fishing, increased sea surface temperatures and storm damage.

The GSKN decision to close the centuries old sugar industry in 2006 has resulted in a relatively vast acreage of unmanaged lands. While allocations have been made primarily for housing and non sugar agriculture, rapid vegetation succession has been taking place. For the most part the reversion from sugar cane to guinea grass and shrubbery has had negative consequences on the environment. Frequent bush fires disturb and threaten breeding and nesting sites for birds, monkeys, lizards and other fauna. The impact on human health (particularly asthma patients) is a major concern.

1.3 Assessment of General Threats

Threats to biodiversity are driven generally by a myriad of complex and intertwining factors manifested at different geographic scales and trophic levels. These forces have been categorized under the following headings:

- Demographic changes
- Socio economic factors
- Market-based factors
- Policy framework
- Built developments

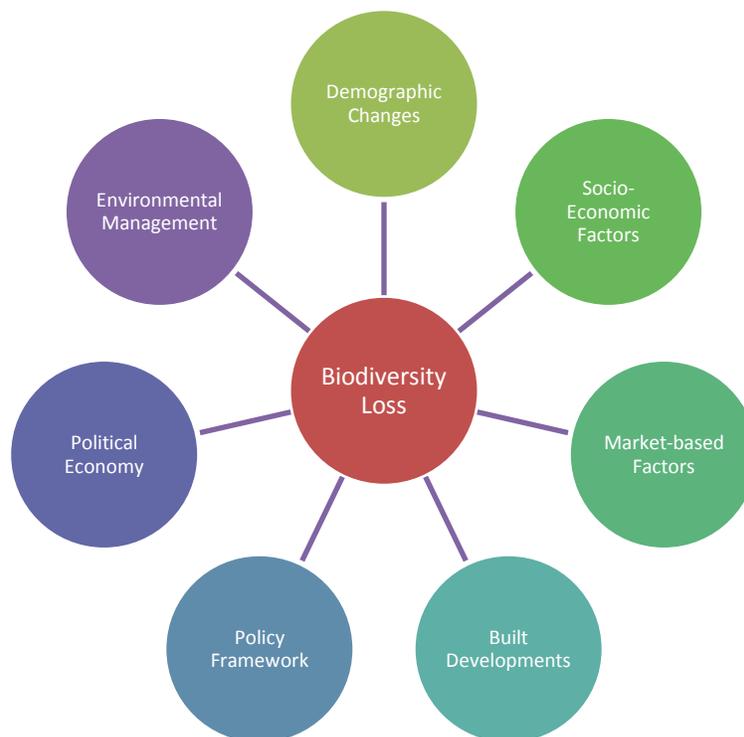


Figure 1: Diagram showing the general threats to biodiversity

1.3.1 Summary of Specific Threats to Biodiversity

Several other factors pose immediate threats to biodiversity resources in SKN. These include:

- Private land ownership
- Climate change and sea level rise
- Invasive species and disease
- Unsustainable resource base
- Wild fires
- Ecosystem loss
- Pollution
- Recreational pressure and human disturbance

See Appendix 1

1.4.1 Demographic Changes

While there have been no exponential increases in the population of SKN over the last 20 years; general/average household size has been steadily decreasing. The lowering of the average household size is a direct consequence of the GSKN land and housing distribution policy that promotes land ownership and affordable shelter.

Although the situation is not as acute in SKN as yet, the distribution of land for housing and other competing uses overtime can adversely impact biodiversity; mainly through land take, habitat loss and/or disturbance. Considering the limited size of both islands it is critical that policy makers consider alternative approaches to affordable shelter and development as a means of reducing overall land consumption.

1.4.2 Socioeconomic Factors

Following the closure of sugar industry, the GSKN developed a National Adaptation Strategy (NAS) to guide the restructuring of the economy. The restructuring process involved the implementation of a 'home grown' programme to address government fiscal imbalances and debt management. GSKN entered also into a standby facility with the IMF as a safety net.

The 'land for debt' swap between the GSKN and the St. Kitts, Nevis and Anguilla National Bank (SKNANB) has seen approximately 1,200 acres of land on St. Kitts exchanged for approximately EC\$700 Million in debt. The Nevis Island Administration (NIA) also has entered into a similar arrangement with the SKNANB for over 200 acres of land.

A Special Purpose Vehicle/Company jointly owned by the GSKN and the SKNANB has been established to manage the sale of these lands. The eventual sale and development of these lands may provide a challenge to BDC if the principles of sustainable land management are not adhered to.

1.4.3 Market Based Factors

Despite the progress that is being made with regard to overall debt restructuring, the economy of SKN continues to face primary external vulnerabilities (mainly from exposure to the dynamics of the United States economy and natural disasters). The internal vulnerability has been associated with the large exposure of the banking sector to government debt.

By borrowing from international financial institutions such as the World Bank, IMF and EU, SKN is required to adhere to certain policy reform measures, including:

- maintaining economic growth through government expenditure reduction and privatization;
- encouraging privatization;
- increasing agricultural production through diversification;
- increasing services;
- investing in support for the poor;
- making government more efficient through civil service reform measures; and
- establishing efficient revenue collection.
- Etc

Generally, interventions to make weak economies less vulnerable are implemented at the expense of the environment as governments seek out investments that yield short term macro-economic results. This does not appear to be the case for SKN as the government has announce its intention to transform the country into a Sustainable Island State built on a Green Economy.

The concept of the Green Economy has been dovetailed into the GSKN's 'home grown' approach/strategy for debt management and wider economic reforms. This new economic course is expected to provide valuable livelihood opportunities in agriculture, alternative energy and tourism.

1.4.4 Policy Framework

The GSKN with the backing of the international finance and donor partners (EU, World Bank, and IMF) has identified the following as pillars for long term economic development of the country.

- Tourism,
- Manufacturing,
- Agriculture,

- Information Communications Technology,
- International Education, and
- Green Energy

These thematic areas for economic growth and development are integral to the pursuit of the Green Economy and a Sustainable Island State. The government plans to create an atmosphere favourable to private sector investment and will do this by liberalizing the movement of capital, reducing administrative constraints, improving access to land, establishing more secure land tenure rights, and improving road networks.

Investments in the areas identified above (especially tourism), may be doubtful if the benefits do not reach vulnerable communities and the poorer segment of the population. The GSKN has designated the Central Forest Range (CFR) as a protected area, in part with a view to promote the development of tourism related sustainable livelihoods. The challenge however is get users to mainstream sustainable livelihood practices. The Guidelines for Mainstreaming Biodiversity Conservation into National Development; developed as part of the revision of the National Biodiversity Strategy and Action Plan should assist in this regard.

1.4.5 Built Developments

Urbanization and the organic growth of rural communities account for an increased percentage of overall land take in SKN. Land allocation and distribution for affordable housing under the Special Land Initiative and the recently announced at the Independence 30 Habitat 500 Scheme have accelerated land consumption of former sugar cane lands and the loss of existing and potential agricultural holdings in some areas. The allocation of 'new' lands for farming; especially livestock farming will reduce opportunities for reforestation as a BDC response.

The GSKN's economic decentralization policy, based on the growth pole concept, is promoting investment and economic development in peri-urban and rural areas. The economic decentralization process is an important poverty reduction measure that can positively impact BDC. The introduction of non traditional rural land use options should reduce the spatial demand for agricultural lands due to emerging employment opportunities in non agricultural sectors.

Investments in resort development projects within the coastal zone have the potential to result or have resulted in several adverse impacts on the environment. These impacts are more pronounced in Small Island States (SIDS), SKN no exception. Primary impacts include:

- Habitat change /destruction
- Disturbance and loss of breeding sites/grounds
- Water pollution,
- User conflict, and
- Beach erosion

Kittitian Hill on St. Kitts is a case model of how a modern resort investment can be implemented on a foundation of sustainable living. Here, the concept of an edible landscape has replaced the conventional ornamental theme. Here crops such as peanuts, sweet potato, cassava, pumpkin and a wide range of tropical fruits form part of the green infrastructure for the development. Also, land clearance has been restricted to building footprints and for pathways.



Figures 2a&b: Photographs of Kittitian Hill showing aspects of green infrastructure

1.4.6 Causes of Biodiversity Loss

In the context of SKN, the main causes of biodiversity loss are summarized in the table below. For the purposes of this report the threat level is described as follows:

- I. High
- II. Moderate
- III. Low

Cause	Summary	Threat Level
Human settlements	i. Settlement pattern in SKN has been mostly coastal. The closure of the sugar industry in 2005 has made 'new' lands available for human settlement development.	Moderate
	ii. Informal settlements (squatting) in vulnerable and ecological sensitive areas resulting in deforestation and soil erosion.	Moderate
	iii. Land clearance resulting in habitat disturbance, fragmentation and loss.	Moderate
	iv. Settlement growth places stress on infrastructure, services and available resources.	High

Mining	<ul style="list-style-type: none"> i. Traditional construction practices results in significant sand mining from ghauts and beaches. ii. Severe beach sand mining has resulted in coastal erosion and habitat loss. iii. Indiscriminate beach sand mining increases exposure level to storm surge and flooding of coastal low lands. 	<p>High</p> <p>High</p> <p>Moderate</p>
Demographic changes	<ul style="list-style-type: none"> i. The population of SKN has been relatively stable. The present population does not exceed the carrying capacity of the natural resource base. ii. Household sizes have been decreasing as a result of increased access to affordable shelter and land. iii. Increased shelter distribution has resulted in more pollution and solid waste generation. 	<p>Low</p> <p>Moderate</p> <p>High</p>
Economic activities	<ul style="list-style-type: none"> i. The closure of the sugar industry has resulted in various forms of land degradation. ii. The operations of the sugar industry resulted in soil and ground water pollution. iii. The closure of the sugar industry has freed up lands for non-sugar agriculture. iv. Formal and informal farming on upper slopes have resulted in deforestation and soil erosion. 	<p>High</p> <p>Moderate</p> <p>High</p> <p>High</p>
Land degradation	<ul style="list-style-type: none"> i. Land degradation is prevalent in low lying areas, particularly on Nevis (Bath Village & Indian Castle). ii. Poor farm (grazing) management practices lead to denudation and soil erosion. iii. Closure of the sugar industry has resulted in unmanaged vegetative succession. iv. Guinea grass intrusion into the forest leads to habitat loss as a result as it provides fuel for fires. 	<p>High</p> <p>High</p> <p>High</p> <p>High</p>
Pollution	<ul style="list-style-type: none"> i. Increased cruise and cargo vessel traffic in the Caribbean Sea and the territorial waters of SKN results in the disposal of bilge/ballast water and sea borne waste. 	<p>High</p>

	<p>Bilge/ballast water has the potential to introduce disease and invasive fish species that affect marine biodiversity. e.g the Lion Fish.</p> <p>ii. Land based sources of pollution threatens coastal and marine biodiversity.</p> <p>iii. There is an increased incidence of illegal solid waste disposal in St. Kitts.</p>	<p>High</p> <p>High</p>
Invasive species	<p>i. The deliberate or accidental introduction of alien species places stress on ecological resources and threatens native species.</p>	Moderate
Natural hazards	<p>i. Extreme weather events, flooding, drought and bush fires affect the biodiversity of SKN.</p> <p>ii. Though on a relatively small scale, landslides on steep forested slopes result in marginal habitat disturbance.</p> <p>iii. Open discharge of silted streams into the ocean affect near shore pelagic and coral reefs.</p> <p>iv. The passage of storms results in the siltation of reefs, disruption of sea grass beds and breeding grounds.</p> <p>v. Hurricanes result in vegetation removal and habitat destruction.</p>	<p>High</p> <p>Low</p> <p>High</p> <p>High</p> <p>High</p>
Livelihood practices	<p>i. Unregulated cutting of trees for charcoal production results in watershed degradation, habitat loss and soil erosion on slopes.</p> <p>ii. Exploitation of ferns and shrubs from the forest for landscaping results in soil erosion and habitat disturbance.</p>	<p>Moderate</p> <p>High</p>
Tourism	<p>i. Increased tours to the rainforest threaten localized biodiversity mainly through habitat disturbance and plant take.</p> <p>ii. Exceeding the carrying capacity of trails, beaches and dive sites result in ecosystem stress and degradation.</p> <p>iii. Resort development results in land clearing and habitat disturbance and loss</p>	<p>High</p> <p>Moderate</p> <p>Moderate</p>

Table 1: Summary of approximate causes for biodiversity loss in SKN

1.5 Consequences of Biodiversity Changes

Diversity at all organizational levels, ranging from genetic diversity within populations to the diversity of ecosystems in landscapes, contributes to global biodiversity. However, for the purposes of this report the discussion here is focused on species diversity, because the causes, patterns and consequences of changes in diversity at this level are relatively easily observed and documented. Species diversity has functional consequences because the number and kinds of species present determine the organism traits that influence ecosystem processes.

The quality and character of species traits may mediate energy and material fluxes directly or may alter abiotic conditions within an ecosystem. Limiting resources, habitat disturbance and micro climate changes regulate process and production rates that are vital for ecosystem functioning. The universal aspects of species diversity that determine specie characteristics include the following:

- Number of species present (species richness),
- Relative abundances (species evenness),
- Particular species present (species composition),
- Interactions among species (non-additive effects), and
- Temporal and spatial variations in these properties.

Changes in biodiversity alter the functional traits of species in an ecosystem in ways that directly influence ecosystem goods and services. Influences might be positive (for example, increased agricultural, fisheries or forestry production) or negative (for example, loss of harvestable species or species with strong aesthetic and cultural values). Variations in species traits affect ecosystem processes directly through changes in biotic controls and indirectly through changes in abiotic controls, such as availability of limiting resources, disturbance regime, or micro/macroclimate variables.

Changes in the profile of biodiversity of SKN may alter ecosystem processes and adversely impact the resilience of ecosystems to environmental change. This has profound consequences for the goods and services that residents of and visitors to SKN derive from the environment. The wider ecological and societal consequences of a changing biodiversity should be minimized to preserve options for future solutions to local, regional and global environmental problems.

The following effects and relationships that impact biodiversity have been observed in SKN, more visible since the closure of the sugar industry.

- i. Vegetation succession (from sugar cane to guinea grass and shrubbery mainly) is causing a retreat of the forest line in some areas because of grass fires. Grass fires also adversely impact arboreal species (habitat loss and disturbance) and soil organisms.

- ii. Observed increases in the mongoose population, particularly on the South East Peninsula have resulted in an observed decline in birdlife in that landscape as the mongoose eats the bird eggs.
- iii. Dramatic increases in the monkey population throughout SKN severely impacts agricultural output and profitability as they destroy crops. Like the mongoose, monkeys also disturbs breeding and nesting sites for birds; a factor that affect pollination.
- iv. Land allocation, mainly for resort development throughout SKN has resulted in changes in several sensitive ecosystems. Land preparation activities including but not limited to dredging, infilling, excavation and grading have led to the removal of plants and habitat disturbance (both aquatic and terrestrial).
- v. Land based sources of pollution carried by storm water runoff into the near shore marine environment affects water quality and the health of coral reefs. The net result has been an observed reduction in near shore pelagic.

1.6 Responses

Generally, GSKN and civil society organizations have been engaged in promoting various aspects of sustainable development. Areas of joint collaboration include:

- Poverty reduction
- Agricultural diversification
- Environmental management
- Water resources management
- Land use planning
- Housing and infrastructure development
- HIV/AIDS and other health issues
- Climate change
- Land degradation
- Bio-diversity conservation

The performance of the SKN in relation to the implementation of the BPOA has been evaluated under the following heading:

- Climate change and sea level rise
- Natural and environmental disasters
- Management of wastes
- Coastal and marine resources
- Freshwater resources
- Land resources
- Energy resources
- Tourism resources

- Biodiversity resources
- National institutions and administrative capacity
- Regional institutions and technical cooperation
- Science and technology
- Human resource development

Generally, SKN has been implementing the national actions, policies and programmes set out in the Barbados Programme of Action (BPOA) and the Mauritius Strategy for Implementation (MSI). See appendix 2 and 3

Part II:

The national biodiversity strategy and action plan, its implementation, and the mainstreaming of biodiversity

Part II: The national biodiversity strategy and action plan, its implementation, and the mainstreaming of biodiversity

2.1 National Targets

The national targets for the Federation are influenced and directed by the global “Aichi Targets”, which were adopted in 2010 under the *Convention on Biological Diversity’s 2011-2020 Strategic Plan*, and adjusted to suit the domestic context. The twelve national targets identified for SKN have been designed to integrate conservation and sustainable use of biodiversity into sectoral and cross-sectoral activities at the Federal level. Additionally, the national targets provide significant focus and impetus for mainstreaming of biological diversity conservation (BDC) into overall national development.

However, the objective of mainstreaming BDC in national development programmes requires a strategic partnership with public sector, private sector, civil society organizations and the community. Accordingly, it is important that the targets are effectively communicated among stakeholders with the view to encourage investments in biodiversity conservation.

Target 1-By 2020, an increased percentage of Kittitians and Nevisians are aware of the values of biodiversity, and understand the steps they can take to conserve and use biodiversity sustainably. (Aichi Target 1,14,19)

Target 2- By 2020, St. Kitts and Nevis would have completed an evaluation of its biodiversity resources. (Aichi Target 2, 14)

Target 3- By 2020, the Ministry of Sustainable Development will have an increased role in the granting of incentives to activities based on biodiversity related sustainability principles. (Aichi Target 3)

Target 4- By 2020, fish and invertebrate stocks and aquatic plants are managed, harvested sustainably and the Marine Management Area has been formally declared. (Aichi Target 6, 9, 10)

Target 5- By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity. (Target Aichi Target 7,11)

Target 6- By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity and appropriate Waste Management Plans are developed. (Aichi Target 8)

Target 7- By 2020, invasive alien species and pathways are identified and prioritized and measures are in place to manage pathways to prevent their introduction. (Aichi Target 9)

Target 8- By 2020, the anthropogenic pressures on coral reefs and other vulnerable coastal ecosystems impacted by climate change are minimized. (Aichi Target 10)

Target 9- By 2020, at least one marine and one additional terrestrial area will be formally declared and appropriate management plans are operationalized. (Aichi Target 11)

Target 10- By 2016, St. Kitts and Nevis would have signed on to the Nagoya Protocol on 'Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization'. (Aichi Target 16,19)

Target 11- By 2015, the revised National Biodiversity Strategy and Action Plan (NBSAP) has been completed and adopted as a policy instrument and is being implemented with broad sectoral participation. (Aichi Target 17)

Targets 12- By 2015, the financial resources for supporting the revised NBSAP implementation have been identified including direct budgetary allocations. (Aichi Target 20)

2.2. 2004 NBSAP Performance Overview

The 2004 NBSAP outlined the actions to be taken by the GSKN toward meeting its obligations under the Convention. It NBSAP was developed based on the following thematic areas:

- Socio-economic issues;
- Tourism and Biodiversity;
- Marine and Coastal Biodiversity; and
- Agriculture and Forestry Biodiversity.

Generally the NBSAP relied on the following principles:

- Conserving natural resources for SKN generations, both present and future.
- Conserving national biodiversity as a basis for sustainable development and achieving integration with the different sectors of the country.
- Establishing National Protected Areas including all vital ecosystems, and endangered species.
- Employing economics-based, scientific management of protected areas, and supporting ecotourism in SKN.
- Implementation of relevant legislations and international and regional agreements, in addition to raising ecological awareness.
- Cooperating with international organizations and donors to implement projects in the area of management of protected areas.

The main objectives of the NBSAP are:

- Management of natural resources, and the other numerous elements, should be based on scientific grounds in order to ensure continuity of the natural ecological balance and prevent deterioration of ecosystems, and protecting creatures from loss or extinction.
- Developing SKN's scientific and technological capacity in areas of biodiversity conservation.
- Development, executive and administrative capacities that attain intended goals, and proceeding with research and studies.
- Mobilizing national efforts to conserve biodiversity with all its ecological, biological, and genetic elements, in order to ensure sustained survival and optimal use.
- Setting the plan of action aiming at involving civil society, individuals or NGOs in biodiversity conservation.
- Establishing legislative basis and economic and social incentives that support conservation of biodiversity and sustainable development of natural resources.
- Integrating national action with regional and international action, and utilizing the bulk of scientific and technical expertise concerned with conserving resources of biodiversity; including gene resources.

The key principles of the NBSAP included:

- Biodiversity is ecologically and economically significant, and is a corner stone of sustainable development.
- Conservation of biodiversity is a tool for developing natural resources, now and in the future, for the benefit of sustainable national development.
- Biodiversity is part of SKN's natural heritage and conserving it is a national and international obligation.
- Successful biodiversity conservation efforts rely on scientific studies and environmental monitoring of internal and external interactions.
- Building of national capacity, implementation and sound management of biodiversity conservation programs and public awareness.
- Implementation of environmental legislations and observing relevant international conventions.

Generally the implementation of the 2004 NBSAP in SKN has been met with mixed results. The challenges to BDC identified during the preparation of the 2004 NBSAP are summarized in the table below.

Challenges	Update
Poverty	GSKN undertook a Country Poverty Assessment Survey in 2007-2008. The incidence of object poverty is trending downwards.

Tourism ventures	Foreign Direct Investment inflows fluctuated between 2004 and 2012. Recently there has been an upsurge in tourism related investment activity in SKN.
Lack of public awareness & education	The DPPE has appointed a public relations/education officer to assist in the dissemination of information on the environment. However, there remains the need to effectively programme training, education and awareness in the work plan of the DPPE and other key agencies.
Traditional Medicine	There is increasing recognition of the value of traditional plants for medicinal purposes. There is a wider variety of local herbal medicines and treatment options.
Pollution	The establishment of the Solid Waste Management Corporation has resulted in a more systematic collection of household waste. A general decline in indiscriminate/illegal dumping has resulted in improved vector control. Also, there has been a general decline in ravine and land based shoreline and marine pollution.
Cultural attitudes	There appears to a general increase in stewardship for the environment. However much more work is required in this regard at the community level.
Unsustainable development practices	GSKN through the DCPB has established policies to promote the orderly use of land. EIA's are required for project approval. Guidelines for Mainstreaming SLM into national development have been prepared and disseminated to key stakeholders. Mainstreaming however MUST be an ongoing process.
Overgrazing	Generally the incidence of overgrazing has been halted on the South East Peninsula of St. Kitts as the animals have been relocated. While there are remaining hotspots, the problem does not appear to be as acute.
Monoculture sugar cane cultivation	Lands previously cultivated have been earmarked for other uses including non sugar agriculture, housing, resort development, etc. With the exception Lower Coastal Section of the Basseterre Valley, no significant conservation easements have been designated on the former sugar lands.
Infrequent research	No significant change
Agro-processing	There has been a slight increase in agro processing activities in SKN. The Department of Agriculture and the Taiwanese Agricultural Mission have established agro processing facilities.
Severe hurricanes	

Recreational activities	NA
Introduction of alien species	The lion fish has been introduced.

Table 2: Summary of update on the 2004 NBSAP implementation

2.3. Updating the NBSAP

The GSKN is in the process of revising its NBSAP. The undertaking of the review of the NBSAP is in recognition of the fact that targets, principles and priorities would have changed especially with the closure of the sugar industry and the transformation of the physical and economic landscape of St. Kitts and Nevis.

Prior to the implementation of the NBSAP, there has been no comprehensive undertaking to address the negative effects of development on biodiversity. For the most part, while some aspects of environmental management and development planning have been addressed, the existing legislative, regulatory, policy and institutional environment do not comprehensively address biodiversity concerns.

The revision of the NBSAP is providing an opportunity for the Government of St. Kitts and Nevis to mainstream biodiversity in the overall development process by setting new national targets, principles and priorities and by targeting stronger institutional integration. The review has sought to identify and examine how various provisions of key legislative, regulatory and policy instruments can better influence biodiversity management in SKN.

The 'new' NBSAP should provide the framework for the following:

- Directing specific responses and to focus the attention of relevant line ministries, departments, sectors, agencies, stakeholder groups and the wider community to consider, understand and apply the principles of sustainable development.
- Strengthening the overall implementation plan of the National Targets as well as realizing the objectives of the National Biodiversity Strategy and Action Plan (NBSAP).
- Bringing specific focus toward ensuring policy and action measures by GSKN are strategically linked to business and biodiversity more visibly and based on principles of fairness and equity.
- Designing a framework that provides an enabling/facilitative environment on matters related to conservation, sustainable use, resources access and benefit sharing.
- Combining species management principles related to both invasive and alien species and focuses on identifying and eradicating pathways for their introduction.
- Raising awareness of the importance of genetic resources and traditional knowledge associated with genetic resources, and related access and benefit-sharing issues.

Several indicators have been included in the revised NBSAP to promote BDC in SKN. These include but are not limited to the following:

- National guiding framework and outlook on biodiversity prepared and distributed.
- Synergistic actions by line ministries, departments and agencies are put in place for the sustainable conservation and use of biodiversity
- Direct and indirect support and interventions into national ecosystems and biodiversity related actions by relevant line ministries, departments, sectors, agencies, stakeholder groups and the wider community by 2020.
- Private sector application and investment in conservation action separate and apart from mere corporate social responsibility interventions.
- Valuing of concessions and incentives granted by the Ministry of Sustainable Development to biodiversity related activities
- Legislative, regulatory and management framework for Marine Management Area for SKN developed.
- Improved management plans developed and components implemented for select areas under agriculture, aquaculture and forestry.
- National programme of action for integrated watershed and coastal areas management and/or prevention of pollution from land based sources and activities developed.
- Major sources and activities contributing to the pollution of the marine environment identified and assessed.
- Development and implementation of access and benefit-sharing legislation or regulatory requirements.
- Standards and/guidelines for monitoring of compliance on benefit sharing developed.
- Establishment of national access and benefit clearing house mechanism.

2.5 Summary of Interventions

Sustainable development initiatives in SKN have been supported by primarily by financing provided by the Global Environment Facility (GEF) through the implementation of the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification (UNCCD) and the United Nations Convention on Biological Diversity (UNCBD).

Several pieces of legislation have been enacted by the GSKN which contribute both directly and indirectly to the goals and objectives of the CBD in SKN. The National Conservation and Environment Management Act (Bill), NCEMA was drafted in 2005 with the view to replace the National Conservation and Environmental Protection Act,

1987 (NCEPA). Once enacted, NCEMA will provide improved provisions for environmental management with a greater focus on biodiversity protection and conservation.

The International Trade in Wild Fauna and Flora Act, 2009 was passed to facilitate SKN's compliance with the obligations under the Convention on International Trade in Wild Flora and Fauna or CITES. This Act also has the objective of conserving and managing the wild flora and fauna of SKN.

The Biosafety Act was enacted in 2012 and addresses the movement, transit, handling and use of all genetically modified organisms that may adverse effects on the conservation and sustainable use of biological diversity.

SKN has also undertaken an Assessment of Capacity Building Needs and Country Specific Priorities in biodiversity management in 2010 as an enabling activity for the CBD. The main objective of this project was to examine *ex situ* and *in situ* conservation strategies for national biodiversity resources. The main outputs from this project were:

- (i) Management Frameworks for Biodiversity Threat Mitigation in St. Kitts and Nevis
- (ii) Incentive Measures for the Promotion of Biodiversity Conservation in St. Kitts and Nevis.
- (iii) Implementation of General Measures for the Conservation and Sustainable Use of Biodiversity in St. Kitts and Nevi.
- (iv) St. Kitts and Nevis Second National Report on Biodiversity to the Convention on Biodiversity.
- (v) A Compilation of Traditional Knowledge for the Protection and Conservation of Biodiversity in St. Kitts and Nevis

A number of national policies which also contribute to the protection of conservation of biodiversity have been implemented. GSKN established a Ministry of Sustainable Development in 2005 to ensure that national development activities were guided by the principles of environmental sustainability. To assist in fulfilling this mandate the key agencies with responsibility for physical planning, development control and environmental management activities were included in the Ministry of Sustainable Development.

Through active collaboration between the key agencies of the Ministry, capacity building initiatives were undertaken for Development Control Officers in the area of the Review of Environmental Impact Assessments. This was done to ensure that environmental issues including BDC were considered in the project approval and monitoring processes.

In 2003 the GSKN established the Central Forest Reserve (CFR) as a protected area. The CFR covers an area of approximately 1250 acres and represents the last remaining stand of undisturbed tropical forest on the island of St. Kitts. Nevis Peak on the island of

Nevis has been earmarked under administrative order to be declared a protected area. The objective of managing these protected areas is to protect and conserve important species of plants and animals which are endemic to SKN.

Under the IWCAM project, the GSKN has designated the lower coastal section of the Basseterre Valley as a protected area. The project sought to demonstrate the proper management and protection of a critical aquifer and well-field through a parallel process of mitigation of threats from contaminants, on-the-ground protection, and improved user-resource management.

Additionally, in July 2010 the GSKN through the MSD formally commenced the implementation of the SLMP. The key project outputs included:

- i. Guidelines on Mainstreaming Sustainable Land Management into National Development.
- ii. The Strategic Framework for Investment Planning and Resource Mobilization for Sustainable Land Management Interventions
- iii. Review of Legislation, Regulation, Policy & Institutional Framework for SLM
- iv. Report on knowledge Management for SLM: Databases on Land Use, Land Tenure, Land Degradation and Land Zoning
- v. SLMP GIS Training Needs Assessment
- vi. Training Manual for Managing Land Resources in St. Kitts & Nevis

Prior to the designation of the CFR and the lower coastal section of the Basseterre Valley as protected areas, Brimstone Hill National Park Fortress on St. Kitts and the Bath Hotel on Nevis were the only two effectively declared sites in the Federation. In 1999 the Brimstone Hill Fortress National Park was declared a World Heritage Site.

The major issues for sustainable development in St. Kitts and Nevis identified during Report were:

(a) There is no comprehensive national policy or plan that addresses sustainable development. However, the increased emphasis on sustainable development interventions to meet national development priorities should provide the supporting framework for the articulation of a national policy or plan.

(b) The Ministry of Sustainable Development provides a general institutional coordinating mechanism for sustainable development in SKN. However, there is need for greater inter agency cooperation and collaboration at the national level to make the model more effective.

(c) Data management systems for sustainable development are inadequate. Additionally, insufficient research capacity affects the availability and quality if data that is relevant to sustainable development.

(d) Insufficient capacity for the design and management of sustainable development interventions. The Strategic Framework for Investment Planning and Resource Mobilization for Sustainable Land Management Interventions developed under the SLMP can be used to further sustainable development activities in SKN.

SKN is in the final stages of the process for declaring its first marine protected area. The establishment of these protected areas represents St. Kitts and Nevis contribution to the CBD Programme of Work on Protected Areas.

Other important interventions that support the implementation of CBD since 2004 are discussed below. These include:

- National Adaptation Strategy (NAS)
- National Environmental Management Strategy (NEMS)
- Agricultural Strategic Plan (2005-2009)
- National Physical Development Plan (2005)
- UNCCD National Action Plan (NAP)
- National Biodiversity Action Plan (NBSAP)
- National Communications on Climate Change
- St. George's Declaration of Principles on Environmental Sustainability (2006)
- Barbados Programme of Action (BPOA)
- Mauritius Strategy for Implementation (MSI)

Programme/Policy Instrument	Targets	Lead Agency	
National Scope			
1	National Adaptation Strategy	<ul style="list-style-type: none"> • Maintenance of macro-economic stability to reduce vulnerability and facilitate investment; • Improvement competitiveness in the production and export of goods and services; • Adoption of social policies to support economic development and protect the most vulnerable; • Promotion of a sustainable development agenda; • Restructuring and transformation of the economy; • Development of appropriate legal and regulatory frameworks; and, • Efficient provision of public goods (such as education and health). 	DEPPSIP
2	National Environmental Management Strategy	<ul style="list-style-type: none"> • Foster Sustainable Improvement in the Quality of Life • Integrate Social, Economic and Environmental Considerations into National Development Policies, Plans and Programmes. • Improve on Legal and Institutional Frameworks • Ensure Meaningful Participation by Civil Society in Decision Making. • Ensure Meaningful Participation By The Private Sector • Use Economic Instruments for Sustainable Environmental Management • Foster Broad-based Environmental Education, Training and Awareness • Address the Causes and Impacts of Climate Change • Minimize and Manage the Causes and Impacts of Disaster • Prevent and Control Pollution and Manage Waste • Ensure the Sustainable Use of Natural Resources • Protect Cultural and Natural Heritage 	DPPE & DPPNRE

		<ul style="list-style-type: none"> • Protect and Conserve Biological Diversity • Recognize Relationships between Trade and Environment • Promote Cooperation in Science and Technology • Manage and Conserve Energy • Negotiate and Implement Multi-lateral Environmental Agreements 	
3	Agricultural Strategic Plan (2005-2009)	<ul style="list-style-type: none"> • Expand the development of non-sugar agriculture and increase its contribution to the country's Gross Domestic Product (GDP). • Development of a market-led approach toward increasing productivity, with an emphasis on crop and livestock production. • Development of farmer groups, strengthening the programming of services to farmers, and maximizing irrigation applications in production. 	DOA
4	National Physical Development Plan (2005)	<ul style="list-style-type: none"> • Highlights a general framework that targets sustainable development in the context of land use planning. • Identify appropriate physical planning and land use strategies that allow for sustainable exploitation of the natural resource base and to direct the use of public sector and private industry resources for planned and orderly development. 	DPPE
5	UNCCD National Action Plan (NAP)	<ul style="list-style-type: none"> • To identify the factors that contributing to desertification and practical measures necessary to combat desertification and mitigate the effects of drought. • To specify the respective roles of government, local communities and land users and the resources available and needed. • To include specific measures to prepare for and mitigate the effects of drought. • Based on the circumstances and requirements specific to the country, the national action programme should include, as 	DPPE & DPPNRE

		<p>appropriate, inter alia, the following priority strategies as they relate to combating desertification and mitigating the effects of drought in affected areas and to their populations:</p> <ul style="list-style-type: none"> ✓ Promotion of alternative livelihoods and improvement of national economic environments with a view to strengthening programmes aimed at the eradication of poverty and at ensuring food security; ✓ Demographic dynamics; ✓ Sustainable management of natural resources; ✓ Sustainable agricultural practices; ✓ Development and efficient use of various energy sources; ✓ Institutional and legal frameworks; ✓ Strengthening of capabilities for assessment and systematic observation, including hydrological and meteorological services; and ✓ Capacity building, education and public awareness. 	
6	National Biodiversity Action Plan (NBSAP)	<ul style="list-style-type: none"> • Management of natural resources, and the other numerous elements, should be based on scientific grounds in order to ensure continuity of the natural ecological balance and prevent deterioration of ecosystems, and protecting creatures from loss or extinction. • Developing SKN’s scientific and technological capacity in areas of biodiversity conservation. • Development, executive and administrative capacities that attain intended goals, and proceeding with research and studies. • Mobilizing national efforts to conserve biodiversity with all its ecological, biological, and genetic elements, in order to ensure sustained survival and optimal use. 	DPPE & DPPNRE

		<ul style="list-style-type: none"> • Setting the plan of action aiming at involving civil society, individuals or NGOs in biodiversity conservation. • Establishing legislative basis and economic and social incentives that support conservation of biodiversity and sustainable development of natural resources. • Integrating national action with regional and international action, and utilizing the bulk of scientific and technical expertise concerned with conserving resources of biodiversity; including gene resources. 	
7	National Communications on Climate Change	<ul style="list-style-type: none"> • To provide an update on national programmes and priorities to reduce green house gases. 	DPPE & DPPNRE
8	National Capacity Self Assessment	<ul style="list-style-type: none"> • To identify and analyze priorities and needs at the country level for capacity development related to the implementation of the UNCBD, UNFCCC, and the UNCCD. 	
Regional & International Scope			
9	St. George's Declaration of Principles on Environmental Sustainability	<ul style="list-style-type: none"> • Foster Improvement in the Quality of Life • Integrate Social, Economic and Environmental Considerations into National Development Policies, Plans and Programmes • Improve on Legal and Institutional Frameworks • Ensure Meaningful Participation by Civil Society in Decision Making • Ensure Meaningful Participation by the Private Sector • Use Economic Instruments for Sustainable Environmental Management • Foster Broad-based Environmental Education, Training and Awareness • Address the Causes and Impacts of Climate Change • Principle 9: Prevent and Manage the Causes and Impacts of Disasters • Prevent and Control Pollution and Manage Waste • Ensure the Sustainable Use of Natural Resources 	DPPE & DPPNRE

		<ul style="list-style-type: none"> • Protect Cultural and Natural Heritage • Protect and Conserve Biological Diversity • Recognize Relationships between Trade and Environment • Promote Cooperation in Science and Technology • Manage and Conserve Energy • Negotiate and Implement Multilateral Environmental Agreements • Coordinate Assistance from the International Donor Community towards the Organization of Eastern Caribbean States Region • Implementation and Monitoring 	
10	Barbados Programme of Action (BPOA)	<ul style="list-style-type: none"> • Presents a basis for action in 14 agreed priority areas and defines a number of actions and policies related to environmental and development planning that should be undertaken by SIDS with the cooperation and assistance of the international community. • Identifies priority areas and indicates the specific actions that are necessary to address the special challenges faced by SIDS. In fulfilling those actions, several cross- sectoral areas are identified, for example, capacity-building, including human resource development; institutional development at the national, regional and international levels; cooperation in the transfer of environmentally sound technologies; trade and economic diversification; and finance. 	DPPE, DEPPSIP
11	Mauritius Strategy for Implementation (MSI) & (MSI +5)	<ul style="list-style-type: none"> • Further the implementation of the BPOA. • Measure progress in implementing the BPOA. 	DPPE, DEPPSIP

Table 3: Summary of select interventions/programmes that support CBD implementation in SKN

2.6 Mainstreaming Biological Diversity Conservation

Biodiversity conservation as a development issue in SKN has been evolving in three stages. The first stage involves viewing biodiversity loss as an outcome of natural and manmade land degradation; the second calls attention to the physical protection of environmental assets (land and marine) from hazards (including pollution) and; the third stage emphasizes strengthening capacity toward addressing the negative effects of biodiversity loss and the impact of development practices on the overall biodiversity profile of the country.

The review of the 2004 NBSAP for SKN showed that BDC was not yet integrated fully in national development frameworks, partly because of lack of knowledge of the process of integration. Previously there was no guidance on how to achieve BDC. The Guidelines on Mainstreaming Biodiversity Conservation into National Development have been prepared to help fill that gap. They aim at providing direction to users (Development Regulators and Practitioners) to help them mainstream BDC in development policies, plans, projects and activities. It is expected that the practice of BDC would become another regularly used decision-making tool, such as Environmental Impact Assessment (EIA), Cost-Benefit Analysis (BBA) and Social Impact Assessment (SIA) in the review of development applications and the articulation of development policies.

The Guidelines contain direction on mainstreaming BDC in selected development themes and sectors. These themes and sectors are:

- poverty reduction,
- agriculture and rural development,
- environmental protection,
- land degradation,
- water resource management,
- marine resources management
- land use planning, and infrastructure.

Others are gender issues, and health issues, and climate change adaptation.

2.6.1 Poverty reduction

Poverty is a universal expression of vulnerability as it weakens the capacity to cope with overall risks. The poor and indigent are usually the most vulnerable to the effects disaster (natural and manmade). Also, the poor are susceptible to other livelihood hazards, partly because disaster and environmental losses often interact with and tend to worsen other livelihood threats including terrestrial and marine biodiversity losses. Thus, environmental risks and other development risks are mutually reinforcing.

BDC and poverty reduction must focus on reducing the multiple sources of risks and empowering poor people to face them. BDC helps safeguard human development, which involves protecting people from deprivation resulting from shocks induced by

natural hazards. Coping with environmental risk through poverty reduction interventions aims to build the overall resilience of people so that vulnerability can be reduced.

The key to mainstreaming BDC in poverty reduction as a national development goal in SKN is to implement interventions that minimize risk accumulation, while resulting in reduction of poverty. Some specific measures include the following:

- institutionalizing the application of risk sensitive-poverty assessment in development planning;
- improving governance of poverty reduction interventions for them to contribute more to building the capacity of the poor to address vulnerability;
- implementing sustainable livelihood measures that strengthen the livelihood assets of the poor (including environmental resources), thereby building their capacities to address vulnerability; and
- improving the quality of growth to help the poor address accumulated risks from past development interventions.

2.6.2 Agriculture and rural development

Agricultural livelihoods in SKN depend significantly on the natural resource base (particularly soil and water). Consequently, several effects of natural hazards and climate change can potentially affect agriculture and rural development. Natural hazards and disasters impact agriculture through three main pathways; namely input systems (including biological inputs), services (such as processing and marketing infrastructures) and management practice (such as water use and disease and pest control). In turn, negative agriculture and rural development practices exacerbate some hazards. Therefore, mainstreaming BDC in agriculture and rural development should aim to reduce the impact of disasters on the sector and the negative effects of sectoral practices on environmental risks.

¹The majority of the poor in SKN live in rural areas. However, the basic resources of land and water are constrained and rural productivity is low partly due to poor natural resource management. Also, rural non-farm activities do not adequately contribute to sustainable growth in agricultural productivity and the economy. As a major economic sector, developments in agriculture have major implications for the vulnerability of livelihoods at risks. Reducing rural poverty and improving rural livelihoods depends strongly on reducing environmental risk. Also, sound agricultural management reduces environmental risks particularly biodiversity loss.

2.6.3 Land degradation

Several environmental factors, such as land degradation and desertification, ecosystem loss, environmentally related diseases, pollution, and, climate variability and change are hazards and factors that can adversely impact biodiversity. Land degradation can cause or worsen environmental risks alone or in combination with other natural hazards which in turn limit ecosystem resilience and growth.

¹ Country Poverty Assessment Survey

For example, environmental degradation can affect biological hazards, such as epidemics, hydro meteorological hazards and some geological hazards, including landslides. Inadequate environmental protection also damages the natural resource base, further weakening the ability of people and ecosystems to withstand hazards. For these reasons, it is necessary to integrate BDC in environmental management and vice-versa to minimize the impact of hazards on the environment and the role of environmental factors in disasters.

Environmental management tools do not systematically incorporate trends in hazards and vulnerabilities. However, these environmental tools were designed from a risk management perspective and can be adapted for identifying disaster risks in project development. For example, risks arising from environmental factors can be identified and analyzed using adapted Environmental Risk Assessment (ERA). Additionally, to determine what measures to take to address risk from environmental protection measures, socio-economic gains from environmental management activities can be demonstrated using such tools as Strategic Environmental Assessment (SEA) and ERA.

2.6.4 Water resources management

Water resources, BDC and development are linked in many ways. Firstly, several natural hazards arise from hydrological factors. Secondly, disasters triggered by natural hazards such as floods can destroy or severely damage water infrastructure, affecting water supply and adversely affecting the immediate environment and development. For example, drought can reduce surface or groundwater flows, flooding and volcanic eruptions can contaminate water quality (potable and marine), and, earthquakes can divert groundwater. Thirdly, water resources degradation causes or worsens environmental risks arising from natural hazards. Degradation of watersheds can adversely induce or exacerbate flooding and landslides. Unsustainable water resources utilization affects productivity and also weakens the resilience of communities at risk.

Because of these reasons, it is important to reduce risks to water resources in a multi-hazard context. Also, because water risks emanate from many sectors, sources and competing uses, water resource management has to be seen as inter-sectoral and multidisciplinary. Therefore, any approach to understanding and managing water risks must be comprehensive and integrated.

2.6.5 Land use planning

Land use planning is an effective tool for national physical, social and economic development and managing the associated risks. A well-designed and risk-sensitive land use plan is a risk reduction tool that also facilitates BDC. However, effective land use planning is challenging because of the multiple competing interests, uses and sectors associated with land. Externalities including regional and global economic instability also present challenges to policy makers and land planners. Land use planning must therefore address spatial and temporal issues connected with the physical vulnerability of key economic sectors, individuals and communities.

Within the context of BDC, land use planning is essentially a proactive form of mitigating environmental risk. Consequently, mainstreaming BDC into the land use planning process involves assessing land risks and applying strategic and integrated measures to meet land management objectives. Integrating BDC in land use planning involves establishing the planning background, formulating the planning strategy and the strategic land use plan, and developing the implementation plan.

The planning background stage involves planning the entire process of integrating BDC in land use, including identifying risks and reviewing the existing institutional framework for development planning and environmental management. Formulating the planning strategy and the strategic land use plan involves analyzing risks, determining strategic directions or end-uses of the land management plan, and designing actual strategic land use and subject development plans. Strategic land use plans are very crucial because they establish planning and development strategies for the area and provide guidance on how to develop programmes to implement the strategic plans.

Developing the implementation plan involves determining the tools to be used to operationalize strategic land use and subject development plans. The developed strategic land use plans can be implemented through the following:

- ✓ land use schemes at regional and local levels,
- ✓ development guidelines and regulations,
- ✓ ground management practices,
- ✓ education and awareness and
- ✓ voluntary compliance enforcement measures.

2.6.6 Infrastructure Development

General infrastructure systems/networks in SKN form part of the physical asset base of the community and impact productivity and the livelihoods of individuals. However, the increasing interconnectedness of infrastructure, particularly those providing critical services, poses challenges for reducing risks. Critical infrastructures are those physical and information technology facilities, networks and assets whose disruption or destruction from hazards or would seriously impair people's lives and livelihoods. In the context of St. Kitts and Nevis, these often comprise infrastructure elements in the following sectors:

- ✓ government,
- ✓ energy and utilities,
- ✓ communications,
- ✓ services,
- ✓ transportation,
- ✓ safety, and
- ✓ agriculture

Considering that complete total security or assurance is neither feasible nor affordable, the priority task in reducing the environmental risk is to ensure that infrastructure

installations are design and constructed within minimal impacts on the environment. Integrating BDC as a risk reduction tool in infrastructure development and management helps to prevent the potential for disruption of reliable services from the impact of hazards to the community. However, it is necessary also to prevent physical failure of infrastructure installations from causing disasters, such as upstream drainage failure resulting in downstream flooding. Accordingly, mainstreaming BDC in infrastructure development as part of the national agenda should aim at minimizing the potential negative effects of hazards on infrastructure, and vice-versa.

2.6.7 Gender issues

In a general way, gender factors help to determine development policies and patterns. It is argued that vulnerability to hazards and community response to disasters are gender sensitive. Gender biases in access to productive resources such as land for farming and capital formation increases women's vulnerability to risks. Therefore, there are development costs to gender bias and clear growth benefits from reversing gender inequality, which would help reduce vulnerability.

Mainstreaming gender in BDC is the process of fully considering and integrating the concerns of women and men in national development policies and programmes. It depends on identifying gender differences in vulnerabilities and coping strategies, and determining gender-appropriate measures for managing risk. However, enhancing gender aspects of BDC is not about simply increasing women's chances of survival and resilience to livelihood risks. It is about balancing the entitlements and responsibilities of both males and females, and the terms of women's participation in the BDC process.

Integrating gender considerations in BDC involves interventions that expand male-female livelihood opportunities and reduce their vulnerability to risks. Some specific interventions to achieve this include:

- ✓ promoting the application of gender mainstreaming tools in BDC programmes;
- ✓ expanding opportunities for male-female participation in decision-making and leadership roles in BDC programmes and institutions;
- ✓ ensuring equitable access by both women and men to BDC interventions, particularly post disaster entitlements;
- ✓ increasing women's access to environmental risk management information, including through public awareness on the gender perspective in disaster reduction; and
- ✓ strengthening comparative research and analysis on the gender aspects of risk configuration.

2.6.8 Climate change adaptation

The impacts of climate change in SKN are likely to encompass the following:

- (1) Increase in drought, flood, tropical storms and other extreme weather phenomena,
- (2) Changes in rainfall, river/ghaut sensitivity and more intense land use,
- (3) Sea level rise leading to coastal erosion and flooding, and

(4) Changes in the national biodiversity profile.

Given the geophysical realities, climate change is likely to worsen SKN's vulnerability to bio diversity loss and other natural hazards. Also, hard mitigation interventions are economically unsustainable and currently ineffective against climate change effects. Consequently, mainstreaming BDC in climate change adaptation should aim to enhance the adaptive capacities of people and the community to assess and reduce climate change risks on ecosystems. Climate change outcomes impact nearly all development sectors as well as several natural processes.

Also, a large degree of uncertainty surrounds climate change issues. Therefore, reducing the risk of disasters from climate change adaptation in SKN involves adopting a multi-hazard and iterative approach. Specific interventions to apply to reduce the risk from climate change will depend on the sector and the climate change impact of concern. Nonetheless, the following should assist in mainstreaming BDC in climate change adaptation interventions as a national action:

- ✓ increasing the use of vulnerability and adaptation assessment in development activities;
- ✓ reducing vulnerability to sustain livelihoods;
- ✓ improving the management of climate-sensitive natural resources (water resources) and economic production systems;
- ✓ promoting economic diversification to reduce over reliance on climate-sensitive primary sectors;
- ✓ increasing the resilience of infrastructure and physical development;
- ✓ restructuring risk profile and sharing through improved financial intermediation and mechanisms;
- ✓ mainstreaming climate and BDC issues and adaptation into national policies, programmes and budgets;
- ✓ strengthening information and communication on climate change effects and adaptation options;
- ✓ enhancing inter-island cooperation to improve productivity and management of shared resources.

Mainstreaming BDC in national development requires that the following key principles are adhered to:

- i. Political commitment, strong institutions and appropriate governance are essential to integrating BDC issues in development processes and to reducing environmental risks.
- ii. The integration of BDC in development is based on sound knowledge of, risk and risk reduction.
- iii. Awareness of risk and risk reduction measures conveys knowledge about BDC solutions.
- iv. Effectively incorporating risk considerations in development decision-making requires synergies between sustainable development and risk reduction initiatives.

- v. Sound development investment in the face of hazards depends on consideration of risk issues.
- vi. Achieving the objectives of mainstreaming BDC depends on enhancing compensatory risk management to help reduce the legacy of accumulated risk.
- vii. BDC is a multi-thematic and multi-sectoral process; mainstreaming it in development involves its integration in development themes or sectors.

Part III:

Progress towards the 2020 Aichi Biodiversity Targets and contributions to the relevant 2015 Targets of the Millennium Development Goals

Part III: Progress towards the 2020 Aichi Biodiversity Targets and contributions to the relevant 2015 Targets of the Millennium Development Goals

3.1 Measuring Progress

As mentioned in Part II above, the GSKN has prepared its National Biodiversity Targets have been designed to integrate conservation and sustainable use of biodiversity into sectoral and cross-sectoral activities. Also, the national targets provide significant focus and impetus for mainstreaming of biological diversity conservation (BDC) into national development. Already SKN has begun to realize some outcomes from the National Targets that have been identified. These results are captioned below.

Target 1-By 2020, an increased percentage of Kittitians and Nevisians are aware of the values of biodiversity, and understand the steps they can take to conserve and use biodiversity sustainably. (Aichi Target 1,14,19)

Indicators:

- 📌 Trends in policy development and investment options for biodiversity related actions by various stakeholders.
- 📌 Trends in mainstreaming biodiversity conservation at the community level.
- 📌 Amount of direct and indirect support and interventions into national ecosystems and biodiversity related actions by relevant line ministries, departments, sectors, agencies, stakeholder groups and the wider community by 2020.

Guidelines on the mainstreaming of BDC into national development have been prepared as part of the NBSAP review process. There is a need to widely disseminate the Guidelines toward ensuring direct and indirect support for national interventions.

Target 2- By 2020, St. Kitts and Nevis would have completed an evaluation of its biodiversity resources. (Aichi Target 2, 14)

Indicators:

- 📌 National guiding framework and outlook on biodiversity prepared and distributed.
- 📌 Synergistic actions by line ministries, departments and agencies are put in place for the sustainable conservation and use of biodiversity.
- 📌 Biodiversity resource evaluation results incorporated in the NBSAP.

A Stocktaking Report on the biological diversity resources of the country has been prepared and incorporated I the revised draft NBSAP. The EIA procedure

set out by the Development Control and Planning Board requires that consideration for BDC be included in development project appraisal.

Target 3- By 2020, the Ministry of Sustainable Development will have an increased role in the granting of incentives to activities based on biodiversity related sustainability principles. (Aichi Target 3)

Indicators:

- Trends in national policy and action programmes that use economic, investment and market instruments for conservation, sustainable use and benefit sharing.
- The type of private sector application and investment in conservation action separate and apart from mere corporate social responsibility interventions.
- Number and/or value of concessions and incentives granted by the Ministry of Sustainable Development to biodiversity related activities.

Albeit indirectly, the GSKN is granting concessions for green energy alternatives as part of its thrust to promote SKN as the World's First Sustainable Island State. The pursuit of green/clean energy interventions reduce can potentially reduce environmental risks.

Target 4- By 2020, fish and invertebrate stocks and aquatic plants are managed, harvested sustainably and the Marine Management Area has been formally declared. (Aichi Target 6, 9, 10)

Indicators:

- Legislative, regulatory and management framework for Marine Management Area for SKN developed.
- Observed fish, invertebrate stocks and aquatic plants increase by 5%.

The GSKN is in the process of declaring its first Marine Protected Area as a conservation measure for marine biodiversity. The candidate site has been indicatively survey. Additionally there are ongoing management programmes that seek to protect marine endangered species (primarily the sea turtle). The Department of Maritime Affaires works closely with the ²Sea Turtles Monitoring Network.

² The St. Kitts Sea Turtle Monitoring Network is a nonprofit voluntary organization led by the Ross Veterinary School of Medicine.

Target 5- By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity. (Target Aichi Target 7,11)

Indicators:

- 🌿 The number of areas under agriculture, aquaculture and forestry that are identified for improved management and management plans developed and components implemented.
- 🌿 The number of public-private partnerships in increasing agricultural production systems that are considerate of local needs.
- 🌿 The amount of investments by government and the non-government sector in agro-biodiversity based research focusing on conservation, sustainable use and sharing of benefits.

The GSKN has identified agriculture as a critical pillar of the ‘new’ and ‘green’ economy. The Ministry Agriculture has already identified areas for commercial farming based on land capability analysis. Also, the Republic of China on Taiwan Agricultural Mission on St. Kitts has being promoting research on vegetable and tree crop production for several years with a focus on water conservation and the sharing the of technology among local farmers. This is expected to continue with the opening of the ‘new’ Agro-Tourism Demonstration Farm.

Target 6- By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity and appropriate Waste Management Plans are developed. (Aichi Target 8)

Indicators:

- 🌿 National programme of action for integrated watershed and coastal areas management and/or prevention of pollution from land based sources and activities developed.
- 🌿 Major sources and activities contributing to the pollution of the marine environment identified and assessed.
- 🌿 At least two demonstration projects (one each on St. Kitts and Nevis) to reduce pollution of the marine environment implemented.
- 🌿 Synergistic actions by line ministries, departments and agencies are put in place for the sustainable conservation and use of biodiversity.
- 🌿 At least two national training workshops in waste water management convened.
- 🌿 Establishment of national legally binding standards for sewage effluent and discharges.

The GSKN is participating in the GEF funded Integrating Water, Land and Ecosystems in the Caribbean SIDS which is a follow on from the Integrating Watershed and Coastal Areas Management (GEF-IWCAM) Project. This project targets the College Ghaut Watershed and its outfall at the Basseterre waterfront.

Target 7- By 2020, invasive alien species and pathways are identified and prioritized and measures are in place to manage pathways to prevent their introduction. (Aichi Target 9)

Indicators:

- 🌿 A national policy on sustainable management of invasive alien species, rare, endemic, endangered, and threatened species developed and components implemented.
- 🌿 National guiding framework and outlook on biodiversity prepared and components implemented.
- 🌿 Synergistic actions between line ministries, departments and agencies are put in place for the sustainable conservation and use of species based interventions.
- 🌿 At least 5% of known species components protected in SKN through a range of specific interventions.

No significant work/action has been taken in this regard.

Target 8- By 2020, the anthropogenic pressures on coral reefs and other vulnerable coastal ecosystems impacted by climate change are minimized. (Aichi Target 10)

Indicators:

- 🌿 Major sources and activities contributing to the coral reef and coastal ecosystems degradation in SKN identified and assessed.
- 🌿 At least two national training workshops on coastal areas management convened.
- 🌿 At least two artificial reefs established (one each on St. Kitts and Nevis) to promote marine biodiversity.
- 🌿 At least two sites (one each on St. Kitts and Nevis) replanted with mangroves.
- 🌿 Zero percent decline in the populations of three endangered marine turtle species (leatherback, hawksbill, green) from 2013 levels.

The GSKN is in the process of declaring its first Marine Protected Area as a conservation measure for marine biodiversity. The candidate site has been indicatively surveyed. Additionally there are ongoing management programmes that seek to protect marine endangered species (primarily the sea turtle). The

Department of Maritime Resources works closely with the ³Sea Turtles Monitoring Network.

Target 9- By 2020, at least one marine and one additional terrestrial area will be formally declared and appropriate management plans are operationalized. (Aichi Target 11)

Indicators:

-  At least one marine and one land based area declared protected with the requisite management plan.
-  The nature of synergistic action to combine and strengthen national policy and resource management as evidenced by public-private partnerships, institutional capacity adjustments and resource use.
-  The number of integrated programmes facilitated to achieve sustainable land management, conservation, governance and the overall sustainable development agenda.

The GSKN has declared the CFR as a protected area with management status. Plans are well on the way to declare the lower coastal section of the Basseterre Valley Aquifer as a Protected Area. Also, Nevis Peak has been effectively declared as a PA based on an administrative order.

Target 10- By 2016, St. Kitts and Nevis would have signed on to the Nagoya Protocol on 'Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization'. (Aichi Target 16,19)

Indicators:

-  Development and implementation of access and benefit-sharing legislation or regulatory requirements.
-  Standards and/guidelines for monitoring of compliance on benefit sharing developed.
-  Establishment of national access and benefit clearing house mechanism.
-  At least one national training workshop convened on the Nagoya Protocol.
-  The nature of synergistic action to combine and strengthen national policy and resource management as evidenced by public-private partnerships, institutional capacity adjustments and resource use.

³ The St. Kitts Sea Turtle Monitoring Network is a nonprofit voluntary organization led by the Ross Veterinary School of Medicine.

There is increasing recognition of the need to capitalize on valuable synergies and the streamlining of national policies, programmes and plans with regard to UNCCD, UNCBD, and UNFCCC.

Target 11- By 2015, the revised National Biodiversity Strategy and Action Plan (NBSAP) has been completed and adopted as a policy instrument and is being implemented with broad sectoral participation. (Aichi Target 17)

Indicators:

- NBSAP completed and adopted at the Government of St. Kitts and Nevis as a key environmental policy instrument.
- At least two workshops (one each for St. Kitts and Nevis) convened.
- The nature of synergistic action to combine and strengthen national policy and resource management as evidenced by public-private partnerships, institutional capacity adjustments and resource use.
- Financing mechanism(s) for NBSAP implementation identified and approved.

The 2004 NBSAP is currently under review and is scheduled to be completed by the end of the third quarter of 2014.

Target 12- By 2015, the financial resources for supporting the revised NBSAP implementation have been identified including direct budgetary allocations. (Aichi Target 20)

Indicators:

- National Financial Strategy for NBSAP implementation developed.
- Budget line for NBSAP implementation included in the budgetary allocations of the Ministry of Sustainable Development in 2015.

3.2 CBD and the Millennium Development Goals

The Millennium Development Goals (MDGs) were officially established when the United Nations General Assembly in 2002 affirmed the Millennium Declaration. The MDGs address issues of poverty eradication and sustainable development through a set of targets. A criticism of the MDGs is that they seem to focus on developmental issues without any clear definition of how to implement actions to achieve the goals. For example, Goal 7 of the MDGs focuses on environmental sustainability without any explicit treatment of the role of biodiversity and natural resources in the development process. Nonetheless, the GSKN is mindful of the role that biodiversity plays in ensuring that the national targets of the MDGs are successfully achieved.

SKN has made commendable strides toward satisfying the MDGs. Table 4 below summarizes the progress that has been made to date.

Millennium Development Goals	Comments
1. Eradicate poverty and hunger	<p>GSKN has implemented the following programmes:</p> <ul style="list-style-type: none"> • Special Land Initiative that distributes land for housing at below market rates. • Supply of affordable housing through the NHC and NLHDC • Establish social safety nets. • Home care services/support for the elderly. • Extension of school meals programme. • Free access to health care for the elderly. • Education and retraining of former sugar workers. • Increasing the minimum wage. • Etc
2. Achieve universal primary education	<ul style="list-style-type: none"> • SKN has universal access to primary education.
3. Promote gender equality and empower women	<ul style="list-style-type: none"> • Women in SKN hold top positions in the Public and Private Sector. • Ministry of Social Development and Gender Affairs is providing training and investment opportunities for women in small and medium enterprises and the non-traditional sectors such as construction.
4. Reduce child mortality	<ul style="list-style-type: none"> • Child mortality in SKN is relatively low. There is open and free access to pre-natal and post-natal care at the community level
5. Improve maternal health	<ul style="list-style-type: none"> • There is open and free access to pre-natal and post-natal care at the community level
6. Combat HIV/AIDS, malaria and other diseases	<ul style="list-style-type: none"> • Infection rates, especially mother to child has fallen drastically. • The Pan-Caribbean Initiative has reduced the cost of anti-retroviral medication. • There is a need to address non-communicable diseases such as

	hypertension and diabetes.
7. Ensure environmental sustainability	<p>GSKN has undertaken several initiatives:</p> <ul style="list-style-type: none"> • Establishment of a Ministry of Sustainable Development. • Requirement for EIA for development approval. • Tourism development strategy that promotes high-end and ecotourism • Participation on regional and global programmes and plans for action under the MEAs. • Development of a Green Energy Policy. • Declaration of intent to be a Sustainable Island State. • Etc
8. Develop global partnership for development	<p>SKN is party to the UNFCCC, UNCCD, UNCBD and other protocols that seek to protect the global environment. Several bi-lateral and multilateral arrangements on various thematic areas such energy (Petro Caribe) and agriculture (Republic of China on Taiwan) are in place.</p>

Table 4: Summary of SKN's performance on the MGD's

3.3 Lessons Learned, Gaps and Constraints

The legal and institutional framework for sustainable development in SKN is derived from several existing legislations and regulations. However, legislation only reflects or translates into implied policy and good intentions, both of which are compromised by lack of enforcement and weak and/or insufficient institutional strength. The absence of key regulations is one of the main factors that hinder effective enforcement.

Apart from regulations, there are several other tools and strategies that can be employed in support of SKN's sustainable development objectives. The need for effective stakeholder involvement through both consultation and participation is of paramount importance. It is useful that the GSKN work together with the key non State Actors in the crafting and implementation of sustainable development interventions. This should assist the GSKN in maintaining a clear vision for sustainable governance of all sectors involved in the national development process, including formulation, implementation, monitoring and evaluation of programmes.

Additionally, there are a number of issues that have to be addressed in order to effect an improvement in the institutional framework for sustainable development in SKN. These issues have been highlighted in the “Guidelines for Mainstreaming Sustainable Land Management in National Development” prepared as an output of the SLMP. The Guidelines seek to provide direction to users to help them mainstream SLM in national development policies, plans and projects. These same guidelines are generic enough to be applied to other sustainable development initiatives such as BDC.

3.4 Recommendations

The Stocktaking Report on Biodiversity which included a review of legislative, regulatory, policy and institutional arrangements indicate that the effective advancement of sustainable development in the Federation of SKN requires several interventions. These include the following:

1. Development of appropriate regulations and or guidelines to effectively support legislative provisions.
2. Re-design and implementation of clearly articulated policies that govern BDC and overall land management.
3. Monitoring and evaluation of institutional and capacity development interventions including education, training, advocacy and awareness.
4. Development and implementation of integrated financing and programme strategies to support BDC.

The development of regulations should aim at creating an enabling environment for private sector participation, information and benefits sharing, technological transfer, physical investment, payment for environmental services and resources, and promoting fair, secure and effective sustainable development interventions.

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ACRONYMS

BPOA: Barbados Programme of Action
CFR: Central Forest Range
DOA: Department of Agriculture
DOLS: Department of Lands and Surveys
DPPE: Department of Physical Planning and the Environment
DPPNRE: Department of Physical Planning, Natural Resources & Environment
EIA Environmental Impact Assessment
EU: European Union
GEF: Global Environment Facility
GSKN: Government of St. Kitts and Nevis
IWCAM: Integrated Watershed and Coastal Areas Management (Project)
MSI: Mauritius Strategy for Implementation
MEA: Multilateral Environmental Agreement
MSD: Ministry of Sustainable Development
NAS: National Adaptation Strategy
NAP: National Action Plan
NBSAP: National Biodiversity Action Plan
NCEPA: National Conservation and Environmental Protection Act
NCSA: National Capacity Self Assessment
NEMS: National Environmental Management Strategy and Action Plan
NHC: National Housing Corporation
NHLDC: Nevis Housing and Land Development Corporation
NPDP: National Physical Development Plan
OECS: Organisation of Eastern Caribbean States
OPAAL: OECS Parks and Associated and Associated Livelihoods Project
SGD: St. Georges Declaration
SLMP: Sustainable Land Management Project (Project)
SWMC: Solid Waste Management Corporation
PWD: Public Works Department
SCNT: St. Christopher National Trust
SKN St. Kitts and Nevis
UNCBD: United Nations Convention on Biological Diversity
UNCCD: United Nations Convention to Combat Desertification
UNDP: United Nations Development Programme
UNFCCC: United Nations Framework Convention on Climate Change
WGDC: White Gate Development Corporation

Appendix A: Summary of Specific Threats

Threats	Description	Responses
Private land ownership	<p>Prior to the closure of the Sugar Industry, 2/3 of the land in St. Kitts was owned by the Crown. The GSKN's land policy increasingly promotes private land ownership. The recent land for debt swap and the ongoing special land initiative has placed large tracts of land in the private ownership domain.</p> <p>Whether it is for private residences or resort activity; land is usually cleared for various development components. The migration of development on private lands to the forest line and wetland ecosystems leads to habitat loss and fragmentation and threatens biodiversity.</p>	<ol style="list-style-type: none"> i. Regulation is the most widely used tool for retaining native vegetation on private land. ii. Conservation easements where voluntary agreements are entered into toward conserving biodiversity on land where owners are conservation minded. iii. Conservation offsets is a powerful approach that requires landowners or developers to make a direct, positive contribution to conservation to offset the negative impacts of their actions iv. Private nature reserves where land owners, particularly those with an interest in tourism, are encouraged and assisted to actively manage part of the land for nature-based tourism v. Conservation incentives for landowners that want or need the land to generate revenue, other innovative mechanisms can be developed to make the land a competitive land use option for the landowner and the country. vi. Land purchase/acquisition where land is effectively added to the public reserve system for conservation purposes.
Climate change and sea level rise	<p>Global climate change is expected to impact plants and animals worldwide.</p> <p>What these changes will be depends largely on the amount and rate at which the world's climate warms. Because ecosystems are so closely associated with particular biophysical constraints unique to particular locales, sudden climate change potentially threatens them. Species unable to evolve, adapt or disperse fast enough to cope with these changes will go extinct.</p>	<ol style="list-style-type: none"> i. Development of National Action Plans and Programmes. ii. Mainstreaming adaptation to climate changes through effective education. iii. Joint collaboration with local, regional and international partners on climate change initiatives. iv. Mainstreaming biodiversity conservation and sustainable land management into climate change.
Invasive species and disease	Organisms that are accidentally or	<ol style="list-style-type: none"> i. Implementing legislation and regulations to

	intentionally transplanted from one ecosystem to another are a major cause of global species extinction. Native species can become invasive when natural controls on their numbers are removed and they reach plague proportions. Invasive species often destroy native species as the invasives expand in number and occupy habitats or compete for food, oftentimes so completely dominating an ecosystem that they cause native plants and animals to go extinct.	<ul style="list-style-type: none"> ii. address the introduction of invasive species. ii. Increase public education and awareness on the functions and values of native biodiversity and the threat posed by invasive species. iii. Conduct regular terrestrial and marine snapshots/rapid assessment of local biodiversity to determine the extent of species invasion. iv. Where practical remove invasive species from local environment. v. Collaborate with local, regional and international partners on actions to address species invasion.
Unsustainable resource use	While direct use of wildlife and other natural resources is essential for human survival, their over exploitation is a critical problem in conservation.	<ul style="list-style-type: none"> i. Promote the sustainable use of resources by enacting and enforcing appropriate regulations. ii. Increase public education and awareness on the functions and values of ecological resources. iii. Designate ecologically sensitive areas as management and/or protected areas.
Wild fires	Fires directly impact on terrestrial and aquatic fauna and flora. Forest and grass land fires destroy habitats and lead to vegetation succession that may disrupt nesting, feeding and breeding sites. The removal of vegetation results in surface wash, soil erosion and siltation of streams, ponds and the near shore environment.	<ul style="list-style-type: none"> i. Implement rapid response mechanisms to address wild fires. ii. Enact and enforce appropriate regulations to deter arson. iii. Promote education and awareness on the dangers of forest fires to sustainable livelihoods and the environment as a whole.
Ecosystem loss	Humans supplant natural ecosystems to grow food, harvest materials, and build settlements. These actions alter or eliminate the conditions needed for plants and animals to survive. Deforestation is of particular concern because so much biological diversity occurs in the complex environments created by forests	<ul style="list-style-type: none"> i. Promote sustainable agricultural development practices. ii. Undertake reforestation and ecological restoration initiatives in degraded areas. iii. Increase ecological education and awareness among farmers and other land users.
Pollution	Pollutants are discharged into the environment and their lingering presence	<ul style="list-style-type: none"> i. Enact and enforce regulations that address land based sources of pollution.

	<p>threatens biodiversity, affecting individual species or degrading entire ecosystems. Pollutants resist categorization because of their varied forms and effects. Some directly toxify the environment, such as lead or PCBs, while others, such as fertilizer runoff, are non-toxic but harm aquatic systems by causing excessive plant growth. Noise and light pollution threaten species by disrupting their behaviour.</p>	<ul style="list-style-type: none"> ii. Increase environmental education and awareness on the harmful effects of chemical and other forms of land and water pollution. iii. Promote organic agricultural practices. iv. Collaborate with local, regional and international partners to prevent the illegal transportation and use of banned substances.
<p>Recreational Pressure and Human Disturbance</p>	<p>Increased ecotourism activities place tremendous stress on local ecosystems.</p>	<ul style="list-style-type: none"> i. Design management plans to govern ecotourism activities. ii. Increased ecological education and awareness among tour operators. iii. Promote the sustainable use of ecological resources.

Appendix B: Barbados Programme of Action- SKN Summary

	PRIORITY AREAS	NATIONAL ACTIONS, POLICIES & MEASURES	YES	NO
1	Climate change and sea level rise	<ul style="list-style-type: none"> a. Ensure early ratification of or accession to the United Nations Framework Convention on Climate Change, the Montreal Protocol on Substances that Deplete the Ozone Layer 4/ and other related legal instruments. b. Monitor, survey and collect data on climate change and sea level rise. c. Formulate comprehensive adjustment and mitigation policies for sea level rise in the context of integrated coastal area management. d. Assess the effects and the socio-economic implications of the impact of climate change, climate variability and sea level rise on SIDS. e. Map areas vulnerable to sea level rise and develop computer-based information systems covering the results of surveys, assessments and observations as part of the development of adequate response strategies, adaptation policies and measures to minimize the impact of climate change, climate variability and sea level rise. f. Improve public and political understanding of the potential impacts of climate change. g. Formulate comprehensive strategies and measures (including the preparation, facilitation and collection of information) on adaptation to climate change that would contribute to a better understanding of the range of issues associated with the development of methodologies to facilitate adequate adaptation to climate change. (j) Promote a more efficient use of energy resources in development planning and use appropriate methods to minimize the adverse effects of climate change on the sustainable development of those resources. (k) Increase participation in the bilateral, regional and global research, assessment, monitoring and mapping of climate impacts, including the adoption of oceanographic and atmospheric measures and policies and the development of response strategies. 	<p style="text-align: center;">✓</p>	<p style="text-align: center;">✓</p>
2	Natural and environmental disasters	<ul style="list-style-type: none"> i. Establish and/or strengthen disaster preparedness and management institutions and policies, including building codes and regulatory and enforcement systems, in order to mitigate, prepare for and respond to the increasing range and frequency of natural and environmental disasters and promote early warning systems and facilities for the rapid dissemination of 		

		<p>information and warnings.</p> <p>ii. Strengthen the capacity of local broadcasting to assist remote rural and outer island communities within countries and among neighbouring countries during disaster events.</p> <p>iii. Establish a national disaster emergency fund with joint private and public sector support for areas where insurance is not available in the commercial market, taking into account the relevant experience to be gained from the operation of similar funds.</p> <p>iv. Integrate natural and environmental disaster policies into national development planning processes and encourage the development and implementation of public and private sector pre- and post-disaster recovery plans, drawing on the capacity of the United Nations Department of Humanitarian Affairs and bearing in mind the International Decade for Natural Disaster Reduction.</p> <p>v. Strengthen cultural and traditional systems that improve the resilience of local communities to disaster events.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>
3	Management of wastes	<p>(i) Develop fiscal and policy incentives and other measures to encourage environmentally sustainable imports and local products with low waste or degradable waste content.</p> <p>(ii) Develop and implement appropriate regulatory measures, including emission discharge and pollution standards, for the reduction, prevention, control and monitoring of pollution from all sources; for the safe and efficient management of toxic, hazardous and solid wastes, including sewage, herbicides, pesticides and industrial and hospital effluent; and for the proper management of disposal sites.</p> <p>(iii) Ratify and implement relevant conventions, including the Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal 5/ and the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention of 1972), 6/ as well as relevant regional conventions.</p> <p>(iv) Formulate and implement public awareness and education campaigns designed to gain local recognition of the need to control wastes at the source; of the value of reuse, recycling and appropriate packaging; and of the possibilities for converting wastes to resources in culturally appropriate ways.</p>	<p>✓</p> <p>✓</p>	<p>✓</p>

		<p>(v) Introduce clean technologies and treatment of waste at the source and appropriate technology for solid waste treatment.</p> <p>(vi) Develop information systems and baseline data for waste management and pollution control, monitoring the types and quantities of wastes, for both sea- and land-based sources of pollution.</p> <p>(vii) Establish port reception facilities for the collection of waste in accordance with annex V of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). 7/</p> <p>(viii) In conformity with the Basel Convention and relevant decisions taken by the parties to that Convention, formulate and enforce national laws and/or regulations that ban the importation from States that are members of the Organization for Economic Cooperation and Development (OECD) of hazardous wastes and other wastes subject to the Basel Convention, including hazardous wastes and other wastes destined for recycling and recovery operations.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p>
4	Coastal and marine resources	<p>(i) Establish and/or strengthen, where appropriate, institutional, administrative and legislative arrangements for developing and implementing integrated coastal zone management plans and strategies for coastal watersheds and exclusive economic zones, including integrating them within national development plans.</p> <p>(ii) Design comprehensive monitoring programmes for coastal and marine resources, including wetlands, in order to determine shoreline and ecosystem stability, and also document and apply, as a basis for integrated coastal zone planning and decision-making, traditional knowledge and management practices that are ecologically sound and include the participation of local communities.</p> <p>(iii) Develop and/or strengthen national capabilities for the sustainable harvesting and processing of fishery resources and provide training and awareness programmes for the managers (Government and local communities) of coastal and marine resources.</p>		<p>✓</p> <p>✓</p>

		(iv) Ratify and/or adhere to regional and international conventions concerning the protection of coastal and marine resources and combat unsustainable fishing and related practices.	✓ ✓	
5	Freshwater resources	<p>(i) Develop, maintain and protect watershed areas, irrigation systems, distribution networks and appropriate catchment systems and promote effective programmes for water conservation and prevention of water contamination through, inter alia, the development of integrated national water plans, the use of appropriate incentives and regulatory measures, community involvement in management and conservation, forest management and reforestation and investment strategies.</p> <p>(ii) Adopt appropriate standards for the management of freshwater resources, and develop and strengthen low-cost monitoring and assessment capabilities, linked to water resource databases, for relevant decision-making tools, including forecasting models for water management, planning and utilization.</p> <p>(iii) Strengthen procedures to monitor and respond to the impacts on water resources of natural and environmental hazards, in particular the impacts of climate change and climate variability, including drought and sea level rise.</p> <p>(iv) Encourage the development and acquisition of appropriate technology and training for cost-effective sewage disposal, desalination and rainwater collection to provide sufficiently high quality potable freshwater, including opportunities for technology interchange SIDS.</p> <p>(v) Strengthen national capacities to make decisions among competing demands for the allocation of limited water resources.</p>	✓ ✓ ✓	✓ ✓
6	Land resources	(i) Develop and improve national databases and the dissemination of information to relevant groups, especially local communities, youth and women, for land-use planning and management, including		

		<p>estimates of the carrying capacity, economic and environmental value of land resources, along with appropriate decision-making tools, such as land/geographic information systems.</p> <p>(ii) Prepare and/or review land-use plans in conjunction with agricultural, forestry, mining, tourism, traditional land-use practices and other land-use policies, with a view to formulating comprehensive land-use plans and zoning so as to protect land resources, ensure sustainable and productive land-use and guard against land degradation, pollution and exceeding island carrying capacity.</p> <p>(iii) Encourage appropriate forms of land tenure, improved land administration and a greater appreciation of the integrated nature of land development in order to facilitate sustainable land-use.</p> <p>(iv) Formulate and enforce laws, regulations, and economic pricing and incentives in order to encourage the sustainable and integrated use, management and conservation of the land and its natural resources.</p> <p>(v) Support appropriate afforestation and reforestation programmes, with appropriate emphasis on natural regeneration and the participation of land owners, in order to ensure watershed and coastal protection and reduce land degradation.</p> <p>(vi) Improve the availability, affordability and environmental quality of shelter in human settlements, in accordance with chapter 7 of Agenda 21.</p> <p>(vii) Increase attention to national physical planning in both urban and rural environments, focusing on training to strengthen physical planning offices, including the use of environmental impact assessments and other decision-making tools.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>
7	Energy resources	<p>(i) Implement appropriate public education and awareness programmes, including consumer incentives to promote energy conservation.</p> <p>(ii) Promote the efficient use of energy and the development of environmentally sound sources of energy and energy-efficient technologies, paying special attention to the possibilities of using, where appropriate, economic instruments and incentive structures and the increasing economic possibilities of renewable sources of energy.</p>	<p>✓</p>	

		<ul style="list-style-type: none"> (iii) Establish and/or strengthen, where appropriate, research capabilities in the development and promotion of new and renewable sources of energy, including wind, solar, geothermal, hydroelectric, wave and biomass energy, and ocean thermal energy conversion. (iv) Strengthen research capabilities and develop technologies to encourage the efficient utilization of non-renewable sources of energy. 	<ul style="list-style-type: none"> ✓ ✓ ✓ 	
8	Tourism resources	<ul style="list-style-type: none"> (i) Ensure that tourism development and environmental management are mutually supportive. (ii) Adopt integrated planning and policies to ensure sustainable tourism development, with particular attention to land-use planning and coastal zone management, requiring environmental impact assessments for all tourism projects; the continuous monitoring of the environmental impact of all tourism activities; and the development of guidelines and standards for design and construction taking into account energy and water consumption, the generation and disposal of wastes and land degradation, the proper management and protection of eco-tourism attractions, and the carrying capacity of areas for tourism. (iii) Identify and develop facilities to meet specific niche markets, particularly in eco-tourism, nature and cultural tourism, and involve local populations in the identification and management of natural protected areas set aside for eco-tourism. (iv) Adopt measures to protect the cultural integrity of SIDS 	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ 	
9	Biodiversity resources	<ul style="list-style-type: none"> (i) Formulate and implement integrated strategies for the conservation and sustainable use of terrestrial and marine biodiversity, in particular endemic species, including protection from the introduction of certain non-indigenous species and the identification of sites of high biological significance for the conservation of biological diversity and/or for eco-tourism and 		

		<p>other sustainable development opportunities, such as sustainable agriculture, training and research.</p> <p>(ii) Ratify and implement the Convention on Biological Diversity, 10/ the Convention on International Trade in Endangered Species of Wild Fauna and Flora 11/ and other relevant international and regional conventions.</p> <p>(iii) Promote community support for the conservation of biological diversity and the designation of protected areas by concentrating on educational strategies that increase awareness of the significance of biodiversity conservation, in particular the fundamental importance to resource-owning communities of a diverse biological resource base.</p> <p>(iv) Generate and maintain buffer stocks or gene banks of biogenetic resources for reintroduction into their natural habitat, especially in the case of post-disaster restoration and rehabilitation.</p> <p>(v) Develop or continue studies and research on biological resources, their management and their intrinsic socio-economic and cultural value, including biotechnology.</p> <p>(vi) Conduct detailed inventories of existing flora, fauna and ecosystems to provide basic data needed for the preservation of biodiversity.</p> <p>(vii) Ensure that the ownership of intellectual property rights is adequately and effectively protected. Ensure, subject to national legislation and policies, that the technology, knowledge, and customary and traditional practices of local and indigenous people, including resource owners and custodians, are adequately and effectively protected, and that they thereby benefit directly, on an equitable basis and on mutually agreed terms, from any utilization of such technologies, knowledge and practices, or from any technological development directly derived there from.</p> <p>(viii) Support the involvement of non-governmental organizations, women, indigenous people and other major groups, as well as fishing communities and farmers, in the conservation and sustainable use of biodiversity and biotechnology.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>
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10	National institutions and administrative capacity	<ul style="list-style-type: none"> (i) Strengthen institutional arrangements and administrative capacity, including cross-sectoral/inter-ministerial committees and task forces, in order to integrate environment and economic policy into national planning and across sectors and ensure the capacity to implement Agenda 21 and the decisions of the Global Conference. (ii) Develop implementation strategies and schedules, including financing, for both regional and national activities. (iii) Establish or strengthen environmental agencies with adequate financial and staff resources. (iv) Increase the awareness and involvement of non-governmental organizations, local communities and other major groups in public education, national planning and the implementation of sustainable development programmes. (v) Improve public education in order to familiarize local, provincial/State and national bodies with environmental laws already in existence, facilitate discussion of the value of environmental legislation and standards to local communities and open wider discussion on more culturally appropriate penalties for the contravention of laws and regulations. (vi) Develop appropriate national, provincial/State and local environmental regulations that reflect the needs and incorporate the principles of sustainability, create appropriate environmental standards and procedures, and ensure their integration into national planning instruments and development projects at an early stage in the design process, including specific legislation for appropriate environmental impact assessment for both public and private sector development. (vii) Give sustainable development task forces or their equivalent the official authority and validity to permit their continued meeting as interdisciplinary and communally representative advisory bodies. (viii) Provide adequate resources for the enforcement of environmental regulations. (ix) Enact the domestic legislation required for the implementation of 	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ 	<ul style="list-style-type: none"> ✓ ✓ ✓

		<p>the wide range of international environmental conventions and agreements directly relevant to SIDS.</p> <p>(x) Establish national information nodes on the sustainable development of SIDS in order to encourage, at the international level, the development of a small islands' sustainable development information network to facilitate the exchange of experience among SIDS.</p> <p>(xi)</p>		<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>
11	Regional institutions and technical cooperation	<p>(i) Support regional organizations through membership and budgetary contributions.</p> <p>(ii) Encourage improved coordination and collaboration among regional bodies and between the international community and regional programmes.</p>	<p>✓</p> <p>✓</p>	
12	Transport and communication	<p>(i) Continue efforts to strengthen transport services and facilities at both the national and local levels, paying particular attention to environmental protection, safety, and innovative energy-efficient and low-cost transport solutions.</p> <p>(ii) Upgrade domestic communication facilities, including radio and telephone coverage, to remote rural and outer island communities, and continue efforts to improve international telecommunications links.</p> <p>(iii) Address quarantine problems and requirements stemming from changing transport situations and longer-term climatic changes.</p>	<p>✓</p>	<p>✓</p> <p>✓</p>
13	Science and technology	<p>(i) Ensure that science and technology policy is closely linked to national environmental strategies and sustainable development plans and is responsive to local and sectoral sustainable development needs, emphasizing self-sufficiency and the</p>		<p>✓</p>

		<p>minimization of import dependency.</p> <p>(ii) Give greater emphasis to research and development, as well as to training for science and technology and economic development generally, and for environmental and technology assessment in particular; refine analytical tools for natural resource accounting; and encourage the development and use of information and communications technology to overcome size and isolation problems.</p> <p>(iii) Promote research and development in areas where endogenous technologies and traditional practices have great relevance, including agriculture, agricultural processing, waste-recycling, ethno-biology and biotechnology, construction and renewable energy, ensuring that mechanisms are in place for the appropriate protection of intellectual property rights in accordance with relevant international conventions.</p> <p>(iv) Encourage the use of endogenous, environmentally friendly technologies by establishing regulations, standards and economic incentives.</p> <p>(v) Develop or ensure access to databases on environmentally sound technologies of local relevance and collect consistent time-series data for monitoring the performance of sustainable development.</p> <p>(vi) Promote and strengthen the role of women in science and technology disciplines.</p>	✓	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>
13	Human resource development	<p>(i) Infuse sustainable development ideas into education curricula at all levels and promote participation by all groups, emphasizing the link between environment and social and economic issues, and continue to improve access to scientific, mathematics and technical training.</p> <p>(ii) Incorporate population issues into the mainstream of decision-making and planning mechanisms of government, including developing comprehensive population policies consistent with sustainable development objectives while respecting and promoting the dignity and the fundamental rights of the human person and of the family.</p> <p>(iii) Improve urban/rural settlements, in consultation with local</p>		✓

		<p>communities, by giving priority to the improvement of basic services, such as access to potable water, environmentally sound sewage treatment and disposal, shelter, education, family planning and health care, as well as to the elimination of poverty; ensuring that development projects are people-centred and have explicit environment and health objectives; ensuring adequate resources for public health and preventive medicine activities; and considering urban development options, including decentralization.</p>	✓	
		<p>(iv) Direct efforts to improve urban/rural settlements through the promotion of projects aimed at the elimination of poverty that give priority to the improvement of basic services such as shelter and comprehensive public health, including potable water, sewage disposal, maternal and child health care, the responsible planning of family size and other specific measures aimed at health promotion and disease prevention.</p>	✓	
		<p>(v) Encourage the use of distance training to meet the expanding educational demand and the large demand for knowledge and training in the area of the environment.</p>		
		<p>(vi) Promote and strengthen the role of major groups, including non-governmental organizations and women, in the creation and implementation of sustainable development initiatives.</p>	✓	
		<p>(vii) Seek to improve the quality of education, training and human resource development by upgrading basic education and technical/vocational skills training and by making improvements, where necessary, to national management and planning capacities and labour market linkages.</p>	✓	
		<p>(viii) Encourage the use of traditional knowledge and skills in environment, resource management and health, and the use of community groups to assist in promoting environmental awareness.</p>	✓	
			✓	

Appendix C: Mauritius Strategy for Implementation – SKN Summary

	Priority Areas	NATIONAL ACTIONS, POLICIES & MEASURES	YES	NO
1	Climate change and sea-level rise	<ul style="list-style-type: none"> i. Fully implement the United Nations Framework Convention on Climate Change and further promote international cooperation on climate change; ii. Continue to take, in accordance with the Convention and the Kyoto Protocol, as applicable, steps to address climate change, including through: adaptation and mitigation in accordance with the principle of common but differentiated responsibilities and respective capabilities; and the effective implementation of the Kyoto Protocol by those countries that have ratified it; iii. Promote increased energy efficiency and development and the use of renewable energy as a matter of priority, as well as advanced and cleaner fossil fuel technologies, inter alia, through public and/or private partnerships, market-oriented approaches, as well as supportive public policies and international cooperation, and support their use in small island developing States, where appropriate and in accordance with their national policies; iv. Implement the Buenos Aires programme of work on adaptation and response measures, in particular those elements that are relevant to SIDS; v. Work to facilitate and promote the development, transfer and dissemination to SIDS of appropriate technologies and practices to address climate change; vi. Build and enhance scientific and technological capabilities, including in SIDS, inter alia, through continuing support to the Intergovernmental Panel on Climate Change for the exchange of scientific information and data, including where relevant to SIDS; vii. Enhance the implementation of national, regional and international strategies to monitor the Earth’s atmosphere, including as appropriate, strategies for integrated observations, inter alia, with the cooperation of relevant international organizations; and work with SIDS to strengthen their involvement in monitoring and observing systems and enhance their access to and use of information. 	<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>	<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>
2	Natural and	<ul style="list-style-type: none"> i. Strengthening the International Strategy for Disaster Reduction and 		

	environmental disasters	<p>related small island developing States regional mechanisms as facilities to improve national disaster mitigation, preparedness and early warning capacity, increase public awareness about disaster reduction, stimulate interdisciplinary and intersectoral partnerships, and support the mainstreaming of risk management into the national planning process;</p> <p>ii. Augmenting the capacity of SIDS to predict and respond to emergency situations, including those affecting human settlements, stemming from natural and environmental disasters.</p>	<p>✓</p> <p>✓</p>	
3	Management of wastes	<p>i. Form regional partnerships to draw on best practices and develop innovative solutions to waste management, seeking international assistance in this effort;</p> <p>ii. Work to strengthen the control of the trans-boundary movement of hazardous wastes, especially through the enhancement of activities under the Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and Their Disposal.</p> <p>iii. Promote sustainable waste management, including by:</p> <ul style="list-style-type: none"> a. Identifying cost-effective and environmentally sound waste management systems; b. Exploring and engaging in innovative forms of financing of waste management infrastructure, including the creation of appropriate national environmental trust funds; c. Promoting reduction, reuse and recycling of waste and waste management initiatives; d. Developing projects appropriate to SIDS for the use of waste as a resource, including for the production of energy as a waste management solution; <p>iv. Promote national, regional and international cooperation to reduce the quantity of waste disposed of at sea, including by working with others in the international community to strengthen regimes relating to the disposal of waste at sea, particularly those regimes established by the International Maritime Organization, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention of 1972),¹⁰ and the International Atomic Energy Agency;</p> <p>v. Promote the broad participation in and early implementation of the new</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p>

		International Maritime Organization Convention on Ballast Water.	✓	
			✓	
4	Coastal and marine resources	<ul style="list-style-type: none"> i. Complete the delimitation of their maritime boundaries; ii. Submit any claims to the Continental Shelf Commission by 13 May 2009 or such later date as may be applicable in accordance with the provisions of the Convention on the Law of the Sea; iii. Further the work on the assessment of living and non-living seabed resources within their national jurisdiction. iv. Establish effective monitoring, reporting and enforcement, and control of fishing vessels, including by SIDS as flag States, to further implement international plans of action to prevent, deter and eliminate illegal, unreported and unregulated fishing and to manage fishing capacity; v. Strengthen or develop, where necessary, national and regional sustainable and responsible fisheries management mechanisms consistent with the 1995 Food and Agriculture Organization of the United Nations Code of Conduct for Responsible Fisheries; vi. Fully implement surveillance and monitoring systems; vii. Analyse and assess the status of fish stocks; viii. If they have not yet done so, consider becoming parties to the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks and the Food and Agriculture Organization of the United Nations 1993 Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas,¹⁴ as well as relevant regional agreements for the conservation and management of fisheries; ix. Establish or enhance the necessary infrastructure and legislative and enforcement capabilities to ensure effective compliance with, and implementation and enforcement of, their responsibilities under 	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ 	<ul style="list-style-type: none"> ✓ ✓

		international law. In this regard, until such action is undertaken SIDS flag States are encouraged to consider declining the granting of the right to fly their flag to new vessels, suspending their registry or not opening a registry.	✓ ✓	
5	Land Resources	<ul style="list-style-type: none"> i. Develop capacity to implement the multilateral environmental agreements and other relevant international agreements in relation to land resources; ii. Develop capacity for sustainable land management and self-generating agro-ecosystems by building on communal tenure systems and traditional land-use planning and practices for crop, livestock and aquaculture production, taking into account the increasing competition for land resources resulting from tourism, urbanization and other activities; iii. Strengthen land tenure and management systems, move from primary to tertiary agricultural production and diversify agricultural production in a sustainable manner. iv. Create an enabling environment for sustainably enhancing agricultural productivity and promoting agricultural diversification and food security; v. Remove production constraints and build programmes in such areas as seed production and integrated pest management systems; vi. Enhance food processing, marketing and product development and quality control; vii. Promote relevant research and development and the use of appropriate modern technologies; viii. Promote sustainable aquaculture. ix. Develop and strengthen partnerships for sustainable forest management; x. Increase stakeholder participation in all discussions regarding the development, management and conservation of forest and tree resources; xi. Ensure adherence to national forest policies and legislation that have been developed to safeguard the rights of resource owners and legitimate or 	✓ ✓ ✓ ✓ ✓ ✓	✓ ✓

		<p>licensed users through the use of administrative and management mechanisms for the alienation, licence or transfer of “traditional rights” for commercial development purposes;</p> <p>xii. Increase the awareness, promotion, adoption and enforcement of legislation to ensure that sustainable rotational logging practices and replanting initiatives are implemented.</p>	<p>✓</p> <p>✓</p>	<p>✓</p> <p>✓</p>
6	Energy Resources	i. Develop and implement integrated energy programmes	✓	
7	Biodiversity resources	<p>i. Integrating biodiversity protection into national sustainable development strategies;</p> <p>ii. Building effective partnerships between all relevant stakeholders essential to the conservation and sustainable use of biological resources;</p> <p>iii. Addressing island biodiversity under the Convention on Biological Diversity in a manner that responds to the unique characteristics of small SIDS and to the threats related to climate change, land degradation and their particular vulnerabilities;</p> <p>iv. Implementing the guidelines of the Convention on Biodiversity and tourism development;</p> <p>v. Enhancing national efforts, both by Governments and other stakeholders, in the implementation of the programme of work of the Convention on protected areas, including the establishment of protected areas consistent with international law and based on scientific information; Controlling major pathways for potential alien invasive species in SIDS;</p> <p>vi. Developing local capacities for protecting and developing the traditional knowledge of indigenous groups for the fair and equitable sharing of the benefits arising from the use of genetic resources, taking into account the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p>

		<p>Sharing of Benefits Arising out of their Utilization as adopted at by the Conference of Parties to the Convention at its sixth meeting;</p> <p>vii. Developing the capacity to promote cooperation among SIDS for biodiversity resources, shared ecosystem management and exchange of experience, including through support for strong networks, by both Governments and other stakeholders;</p> <p>viii. Participating in the Ad Hoc Open-Ended Group of the Convention on an international regime on access and benefit-sharing to elaborate and negotiate the nature, scope and elements of an international regime on access and benefit-sharing in accordance with the terms of decision VII/19 of the Conference of Parties to the Convention, including, inter alia, the issue of unauthorized access to and misappropriation of genetic resources and traditional knowledge, which is of particular concern to small island developing States;</p> <p>ix. Developing human and institutional capacity at the national and regional levels in SIDS for research in the area of biodiversity, including taxonomy;</p> <p>x. Supporting, through the Convention and its Cartagena Protocol, the development and implementation of national bio-safety frameworks;</p> <p>xi. Supporting SIDS efforts in building community capacity to conserve important species, sites and habitats.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	
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