



Sectoral and Inter-sectoral Integration of Biodiversity in Seychelles

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1. Introduction

Seychelles¹ (2011) reported on the Environmental Management Plan for Seychelles 2000-2010 (EMPS), management of the Development Cycle, sectoral strategies, monitoring and review, fisheries, the Ecosystem Approach and Mainstreaming Biodiversity.

2. The Environmental Management Plan for Seychelles 2000-2010 (EMPS).

The primary strategic mechanism for the integration of environmental concerns into socioeconomic sectors in Seychelles is the EMPS. The EMPS² sets out ten thematic areas including one entitled “Biodiversity, Forestry and Agriculture” and another “Fisheries and Marine Resources/Processes”. These two chapters effectively cover Seychelles’ main biodiversity issues and their cross-sectoral integration. The Biodiversity thematic area was conceived on the basis of the content of the existing NBSAP and then subject to stakeholder review and updating. The then Division of Environment, in light of the national profile and priority of the EMPS, opted to pursue the EMPS as its primary tool for the implementation of the national Biodiversity agenda.

The EMPS was developed through an iterative and comprehensive process of national stakeholder consultation and sets out a functional and rigorous administration procedure to ensure its effective review and adaptive management. The EMPS established a representative national stakeholder Steering Committee to advise the DoE on its implementation.

Unfortunately the EMPS was not administered as intended and the reviews and updating never took place resulting in various shortcomings in terms of the management and implementation of national biodiversity objectives (see Section 2.2 for further information). It is intended that the 3rd generation EMPS (SSDS 2011-2020) will effectively address these shortcomings and enable enhanced mainstreaming of biodiversity as a contribution to Seychelles’ pursuit of sustainable development.

3. Management of the Development Cycle.

Biodiversity is integrated in to the development cycle by two primary legal mechanisms the 1972 Town and Country Planning Act (TCPA) and the 1994 Environment Protection Act (EPA) with its 1996 Environmental Impact Assessment regulations. The Acts working together provide the approval mechanism and conditions for developments through the Planning Authority.

Biodiversity issues are incorporated through ecologically sensitive areas set out in the sensitive areas atlas. Shortcomings in this mechanism have been identified with regard to discrepancies between the

¹ Seychelles (2011). Forth National Report to the United Nations Convention on Biological Diversity, Environment Department, Ministry of Home Affairs, Environment, Transport and Energy, Victoria, 122 pp.

² Seychelles (2000). Environment Management Plan of Seychelles EMPS 2000 -2010: Managing for Sustainability, Final Draft for Review, April 2000, 142 pp.

two Acts and the need to update the 1996 sensitive areas atlas. These issues are being addressed under the GEF mainstreaming of Biodiversity project.

4. Sectoral Strategies

The key economic sectors of Seychelles are tourism and fisheries both of which depend upon the national collateral of a healthy, productive and aesthetically pleasing environment. The importance of sound environmental management and the sustainable use of biodiversity therein are therefore prominent in strategic documents for the sectors e.g. Vision 21: Tourism Development in Seychelles 2001-2010 and The Fisheries Policy of Seychelles. The fisheries sector re-iterates and develops the objective of sustainable use in its various fishery management plans and strategies - e.g. An inshore management strategy for Seychelles and its shark NPOA.

Forestry policy has, in particular amongst sectoral approaches, seen a fundamental shift within the last 15 years taking its emphasis from timber production to biodiversity conservation. The Agricultural Policy 2003-2013 (GoS 2003) also seeks to reduce environmental and biodiversity impact from its activities by lowering artificial chemical input, conserving soil and reducing water consumption by the application of biodiversity-friendly technologies.

5. Monitoring and Review.

Aside from sectoral implementation and project reports broader national assessments and reports provide insight into the effectiveness of biodiversity integration e.g. National Capacity Self-Assessment and the Millennium Development Goals Report and enable review and adaption of ongoing initiatives.

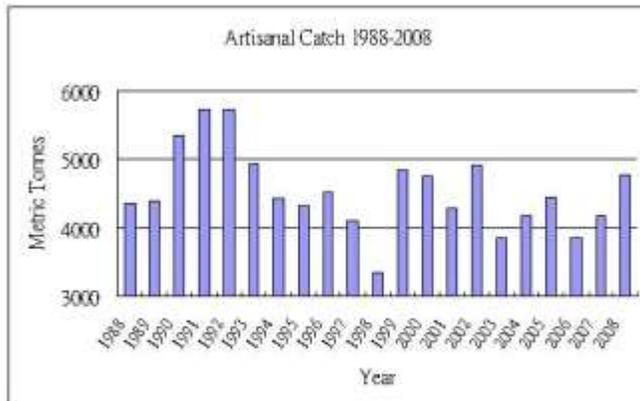
6. Fisheries

The marine environment is central to Seychelles development; artisanal, semi-industrial and industrial fisheries are central to Seychelles economy and local food security (Seychelles has one of the highest global per capita fish consumption indices with estimations varying between 65-75kg per annum).

Artisanal Fishery

The artisanal fishery has maintained a relatively stable catch over the last 25 years varying typically between 4,000 and 5,000 MT per annum (mean catch 1988 – 2008: 4497MT) these figures do not however reflect the increase in effort and improvement in fishing techniques. Inshore areas around the main populated islands and various demersal stocks are known to be overexploited due to concentration of fishing effort in those areas. The fishery consists primarily of pelagic carangids (Trevally and Bludger), Lethrinidae, Lutjanidae, Scaridae, Serranidae, Siganidae, Lobster spp, sea cucumber spp and octopus.

Figure 1: Summary of Seychelles Artisanal Catch 1988 – 2008.

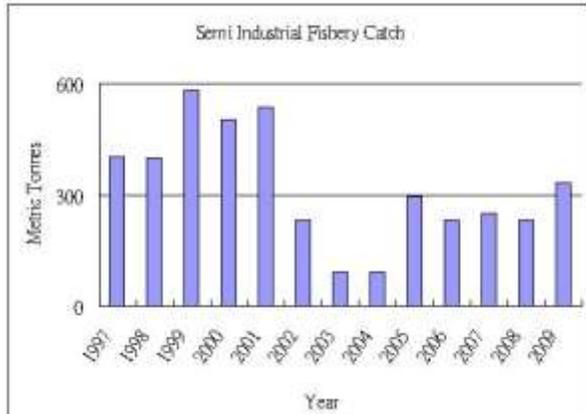


Semi-industrial Fishery

The semi-industrial pelagic long line fishery in Seychelles started in 1995 targeting swordfish and tuna with a significant shark by-catch component. The number of vessels active in the fishery has fluctuated from 7 to 11 (in 2008 and 2009, 9 vessels were active though only 7 were involved in targeting swordfish and tuna in 2008). A major shift in fishing effort in 2002-2005 was driven by a European Commission (EC) warning regarding the cadmium level found in swordfish from Seychelles waters (cadmium in local swordfish registering at 0.3-0.5 parts per million) this caused the Seychelles Government to ban the export of swordfish to the EC until the situation could be negotiated. This forced the vessels to switch to the next viable commodity to pay their loans and that was shark fin, the export of shark fin in 2003 increased tenfold on the preceding year, and served to further impact the already depleted stocks on the Mahé plateau and other banks in the Seychelles EEZ. The EC ultimately changed its cadmium criteria³ and swordfish export re-commenced in 2005 – several boats however remained targeting shark due to the transition costs (in terms of gear and hygiene requirements). This situation was not rectified until 2008 when an amendment to the fuel subsidy regulations under the Agriculture and Fisheries Incentive Act encouraged the fleet to shift back to the swordfish fishery with an 80% increase in effort to the fishery that year and a further 40% increase in 2009. There are concerns in this regard also however, as CPUE for the swordfish fishery has declined to its lowest point in the 2008-2009 period and close observation is now required. It is also considered probable that the declines in shark catch recorded 2008-2009 corresponding to this switch of effort may be due to shark fin landings being transhipped to artisanal vessels at sea and hence not declared so that the semi-industrial fleet can still benefit from fuel concessions.

³ European Commission regulation (EC) No 78/2005 amending regulation (EC) No 466/2001 as regards heavy metals.

Figure 2: Semi-Industrial Fishery Catch summary 1997-2009.



Industrial fishery

Fishery activity and economic importance has grown rapidly since the mid-1980s with the expansion of industrial tuna fishing in the western Indian Ocean and establishment and subsequent expansion of a tuna canning factory in Port Victoria. Seychelles is now a regional hub for industrial tuna fishing with substantial foreign fleets (purse seiners and long liners) licensed to fish in the Exclusive Economic Zone and the port offering ancillary services to vessels, in addition to the cannery and trans-shipment. Industrial tuna fishing now matches or exceeds tourism revenue to the country, whilst the wider fishing sector accounts for 15-20% of official employment.

Seychelles is a member of the Indian Ocean Tuna Commission (IOTC), an intergovernmental organization established under the FAO, mandated to manage tuna and tuna-like species in the Indian Ocean. The IOTC has 28 members (27 countries and the EC) and 4 cooperating non-contracting parties. The objective of the Commission is: "To promote cooperation among its Members with a view to ensuring, through appropriate management, the conservation and optimum utilization of stocks covered by this Agreement and encouraging sustainable development of fisheries based on such stocks".

In such a huge ocean basin with so many active fishery participants, including IUU, (Illegal, Unreported and Unregulated fishing activities) and a complicated mix of target and by-catch species in the context of very complex and dynamic ecosystem this is a very considerable challenge and there are various reasons for concern. The report of the 13th session of the Scientific Committee of the IOTC noted that the Yellow fin tuna (*Thunnus albacores*) stock is likely to be in an overfished state, that the stock status for Albacore (*Thunnus alalunga*) and Skipjack (*Katsuwonus pelamis*) tuna are uncertain and should be closely monitored, and that the lack of data for many other species was cause for considerable concern (see Table 3 for details).

7. The Ecosystem Approach and Mainstreaming Biodiversity.

Implementing the ecosystem approach in tropical countries, where knowledge of the overall species content and complexity of ecosystems is often highly limiting, is a difficult task. Seychelles, in particular

in the context of its ancient terrestrial ecosystems on the main granite islands and the unique assemblages and interactions of its coral reefs, faces real capacity limitations in this regard.

Indicator species, typically high food chain or key structural species, are utilized to provide insight into ecosystem health and guidance to management regimes. In the terrestrial domain apex species (e.g. birds or reptiles) and their relative occurrence and abundance have typically been used to guide ecosystem management. In the marine ecosystem productivity of commercially important species and estimates of their standing biomass and/or CPUE provide the main criteria guiding management.

Seychelles has programmed two major national initiatives aimed at increasing capacity to utilize the ecosystem approach to mainstream biodiversity -the GEF full-size projects “Mainstreaming Biodiversity Management into Production Sector Activities” (Mainstreaming Biodiversity Project commenced in 2008) and the “Strengthening Seychelles' Protected Area System through NGO Management Modalities” (Protected Areas Project scheduled to commence in 2011). These two projects directly address these concerns by seeking to integrate biodiversity across development sectors and upgrading the protected area network and managing it in the context of the broader land and seascapes respectively.

One key example of the application of the ecosystem approach, and one where Seychelles has excelled, is the mainstreaming of biodiversity into the tourism sector in the case of small island ecosystems. Since 1995 several small islands (e.g. Bird, Denis, Fregate and North Islands) have undergone ground breaking IAS eradication programmes allowing for subsequent habitat rehabilitation and the introduction of critically endangered endemic species. This has taken place mostly on private tourist resort islands and been funded primarily by the tourism industry.

Other key examples of ecosystem restoration have taken place on the Special Reserves of Aride and Cousin – managed by the Island Conservation Society and Nature Seychelles respectively. Private island initiatives have also been undertaken – e.g. Cousine, Conception and D’Arros Islands. The combination of and synergies between these initiatives have constituted the major advance in the national conservation and sustainable use of biodiversity during the reporting period and offer considerable hope, and provide a basic model, for further and more ambitious initiatives in the future.