



# Gan International Airport

## Land Use Strategy

Draft For Consultation - April 2009

This Strategy has been prepared by Riyan Pvt Ltd as part of the Gan Airport's land use planning processes and in accordance with the provisions of the service agreement with the Ministry of Housing and Urban Development. This strategy should be read in that context only and is open for consultation.

The assumptions and forecasts in this Strategy should not be used or relied upon by any person or entity for any other purpose.

The maps and plans within this Strategy are indicative only, actual developments and the timing and placement of those developments will be subject to demand, detailed planning and the obtaining of relevant approvals.





## Vision

## VISION

The vision for Gan International Airport is an economically viable, boutique, environment friendly airport recognized for its service excellence, tropical ambience and green gardens.

## MISSION

The mission is to serve the southern region's evolving transportation, business and economic development needs and to maximize the growth of a wide range of aeronautical and other related businesses.

### Key Elements

The key elements of the development vision are:

- ▶ Development of international air services at the airport worthy of the Maldives international image and economic development potential through the development of first-class aeronautical and commercial facilities, customer services and amenities appropriate to the character of a world class tourism destination;
- ▶ Development of a critical national aviation infrastructure asset - as the 24-hour Boeing B747
- ▶ And Airbus A380 capable backup airport for traffic unable to access Male' International Airport during emergencies, harsh weather conditions, curfews and overflow due to capacity constraints in the longer term;
- ▶ Development of Gan Airport as a major regional transport hub for passengers and freight – to facilitate Addu's direct links with Male' International Airport, Fuvahmulaku, the inhabited islands and resorts in Huvadhu Atoll, and the regional airports: Kaadedhoo, Kadhdhoo and Hanimaadhoo;





- ▶ Development of new integrated airport terminal facilities - to maximise the benefits to the region of airlines, seaplanes, buses, and regional ferry services through offering the highest level of service and convenience to the travelling public;
  - ▶ Further development of the aeronautical business including flying school, a significant aircraft maintenance centre, and as a base for airlines;
  - ▶ Maximise tourism and trade opportunities without compromising on aviation operations – establish hotels and tourism products to maximize total on-Airport employment and provide trade growth through designated specialist tax free trade zones;
  - ▶ commitment to environmental sustainability and heritage preservation– to develop the Airport as a heritage preserved, green eco-friendly garden airport;
  - ▶ upgrading of essential support services - to make Gan Airport and its surroundings the centre of successful aeronautical business, tourism, retail and transport.
- Purpose and development objectives



## AIM OF THE STRATEGY

The aim of this Land Use Strategy is:

- ▶ to establish the strategic direction for the efficient and economic development of land in Gan, Addu Atoll over the next 20 years;
- ▶ to provide for the development of additional aviation and other land uses of the Gan International Airport;
- ▶ to communicate to the public the intended land uses in Gan International Airport and plans for growth of the Airport;
- ▶ to reduce potential conflicts between land uses and users of the Gan International Airport, and to ensure that uses of the Gan International Airport are compatible with the development vision for Addu Atoll and the Southern Province.
- ▶ to grow the Airport in harmony with the broader regional development goals by responding to the needs of the community, both in terms of delivering flights, jobs, and business opportunities as well as minimising any negative impact of airport on people's lives.

## DEVELOPMENT OBJECTIVES

The development objectives are as follows.

### Objective 1

**Ensure the Airport has capability to handle international air services in a safe, comfortable, and secure manner.**

This objective involves:

- ▶ developing runway, apron and airfield facilities to accommodate long haul flights direct from Europe and East Asia;
- ▶ maintaining security standards in accordance with Department of Civil Aviation regulations;
- ▶ working with government and the community to ensure appropriate land uses under flight paths; and
- ▶ ensuring that the maintenance of operational safety is paramount to the planning of all Airport development.



## Objective 2

### **Develop Gan International Airport as a multi-modal transport hub for passenger and freight connections.**

This objective involves:

- ▶ Establishing a water aerodrome and seaplane terminal in Gan to increase the attractiveness and business viability of tourism in the South Province and Upper South Province.
- ▶ Developing a yacht marina in Gan to enable seamless jet-limousine-yacht connections for business travelers and yachting enthusiasts
- ▶ Providing a new, substantially convenient jetty opposite the arrivals of terminal building to enable easy access for flying passengers taking sea transport to other destinations.
- ▶ Repair and enhance access facilities at the main jetty of Gan and build an easy access ferry terminal with bus linkages as a logical and long-term strategy for intra and inter province ferry services to further enhance the Airport's transport hub concept.
- ▶ Repair and maintain the fuel jetty in Gan as a critical infrastructure for aviation and other transport related fuel needs of Gan.
- ▶ Repair and enhance the facilities for cargo handling in the main jetty of Gan.

## Objective 3

### **Provide modern first class terminal facilities in a dedicated terminal precinct**

This objective involves:

- ▶ Creating an exciting 'sense of arrival' experience for passengers;
- ▶ Making available a wide range of attractive facilities that may include services such as but not limited to food outlets, bank, retail shops, car parks, taxi, bus and hire car facilities, airlines offices, and children's play areas.
- ▶ Adding value to services for stakeholders, including the aviation industry, customers, lessees, the travelling public, Airport visitors and/or the region's community.

- ▶ Ensuring that the design and facilities of the Gan International Airport reflect its role as a gateway to the Maldives and the Southern Province.
- ▶ Ensuring that the form and image of all terminal facilities and buildings feature design concepts applicable to the tropical small island environment of Gan.
- ▶ Include high quality contemporary airport design.

#### Objective 4

**Maximize job creation and the economic growth of the Airport and the surrounding Region.**

This objective involves:

- ▶ Maximizing aeronautical growth;
- ▶ Maximizing the range of aeronautical businesses by proactively introducing initiatives such as flying school
- ▶ Maximizing retail and commercial development options on the Airport
- ▶ Maximizing on-Airport employment through establishment of hotels and different tourism products.
- ▶ Develop non-aeronautical land to support future aeronautical infrastructure development.
- ▶ Put land to productive use where commercially possible, considering surrounding land uses and transport linkages



## Objective 5

**Provide essential services infrastructure that allows the Airport and its associated businesses to reach their potential.**

This objective involves providing:

- ▶ Water storage and supply
- ▶ Sewerage and wastewater system
- ▶ Drainage and flood control
- ▶ Telecommunication
- ▶ Electricity

## Objective 6

**Ensure an environmentally sustainable airport**

The continuing development of Gan International Airport as a leader in national environmental sustainability, supported by the parameters outlined in the National Sustainable Development Strategy (NSDS) and third National Environment Action Plan (NEAPIII).

This objective involves giving special attention to:

- ▶ Maintaining and creating landscaped gardens
- ▶ Preservation of old trees
- ▶ Protection of the beach
- ▶ Protection of the reef environment and
- ▶ Reducing the carbon footprint of the airport

## Objective 7

### **Preserve Cultural Heritage**

The Gan International Airport has many buildings and sites of cultural and historic significance. Buildings such as the Maarangaa, Astra Cinema and sites such as the war memorial would be protected and preserved.

## Objective 8

### **Establish a management structure that will respond to the needs of the community and be open and accountable.**

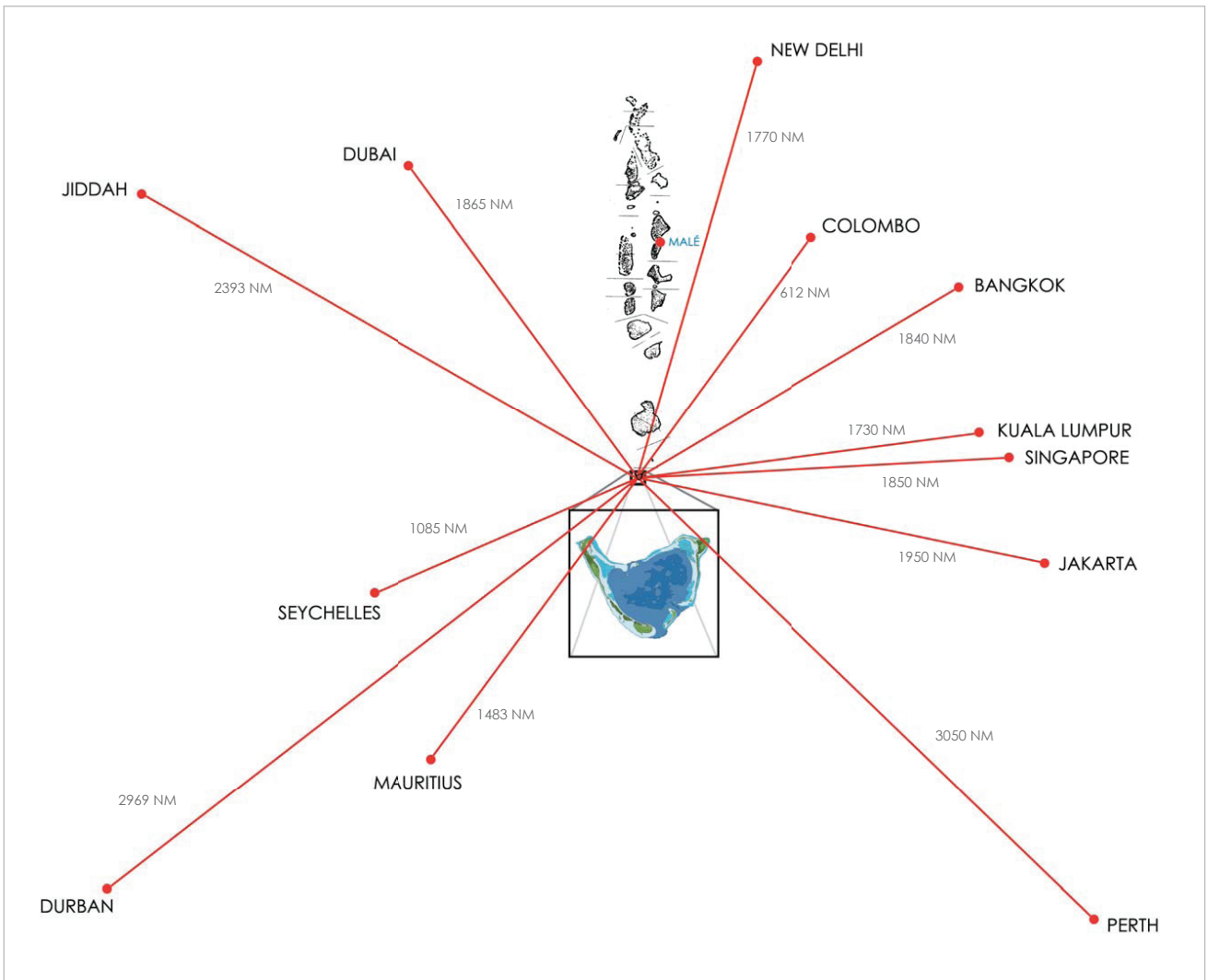
The community has an ongoing expectation that Gan International Airport meets local demand for additional flights, as well as a reasonable expectation that Airport will grow in the future in response to community and business needs. The management of Gan International Airport shall always be open with its stakeholders, including the broader regional community, as to current and future planned developments at Gan International Airport.



## LOCATION

Gan Airport is located in Addu Atoll, 544 kilometres south of Male' International Airport. Gan Airport is 109 kilometers south of Kaadedhdhoo Airport in Huvadhoo Atoll and 51 kilometers south of the proposed airport in Fuvahmulaku. It is located in the center of the Indian Ocean along the international maritime transport route.

The Maldives National Defence Force occupies a large area to the south of the Airport runway. The withdrawal of Defence facilities from Gan or providing reasonable access and the inclusion of the landside in the south as part of the Airport lease will present opportunities for civil aviation and commercial expansion on the southern side of the Airport, the uses for which are outlined in greater detail in the following Chapters.



## HISTORY

Gan was an inhabited island of the Maldives until 1941 when a military base for the Royal Navy was established. The Royal Navy engineers began constructing airstrips on Gan in August 1941 for the Fleet Air Arm. In 1957 the Royal Navy transferred the base into the control of the Royal Air Force. The Royal Air Force Station Gan became established in the late 1950s as a stopover on the reinforcement to the RAF Far East Air Force based in Singapore. In 1956 the staging role between the Middle East and Far East fell to RAF Gan.

Gan was extensively used by bombers, fighters and transports on their way to Singapore and other destinations in east Asia during the late 1950s and the 1960s. Other foreign military forces, like the US, occasionally used the facilities. However as the 1970s dawned, the United Kingdom was withdrawing from its commitments east of the Suez. By the end of 1971 the RAF Far East Air Force was disbanded and the major rationale for Gan was gone. By 1975 British military aircraft using the base were very few. Gan was finally closed and turned over to the Maldivian civil authorities on the 29 March 1976.

Following the handover back to the Maldives Government, the airfield was developed into a civil airport, and is now known as Gan International Airport. Passenger terminal development by the Government of Maldives commenced in the early 1980s but was in need of a major refurbishment by the mid 1990s. The new terminal building was completed and opened for passenger use in January 2008.







## Runways & Airfield Development

There is clearly a significant demand for international air services evidenced by the opening up of tourist resorts in the southern development region. By providing easy access, excellent infrastructure and competitive pricing, Gan International Airport could also attract passenger and freight operations from Male' International Airport. Gan airport is planned to include 24-hour international and domestic flight operations, private jet traffic, international freight operations and overflow passenger services from Male' International Airport.

## CAPABILITY TO HANDLE INTERNATIONAL AIR SERVICES

In order to make tourism attractive and economically viable in the South and Upper South Province it is critical for Gan to have the capability to handle international air services. Furthermore, given the restrictions on flight movements per hour, limited aircraft parking space, high fuel costs, high land rents, high inflight catering costs and rapidly increasing demand for flights to Maldives, Gan International Airport is expected to play an important longer-term role in meeting the overflow aviation needs of the Male' International Airport.

For the introduction of international flights, it is critical that Gan International Airport be fully designated as an unrestricted international airport with full Government funding of customs, immigration and quarantine services (as occurs at Male' International Airport) from the 2009 financial year onwards.



## GAN INTERNATIONAL AIRPORT DETAILS

Runway	2,652 x 46 m
Apron	671 x 123 m
Taxi Way	27 x 174 m
Strength	65 PCN
Maximum take-off weight	150, 000 KG
Aerodrome Location Indicator and Name	VRMG - Gan Island / Gan
ARP coordinates and site at AD	004136S 0730920E Runway mid point
Direction and distance from City	148 degrees 13KM from Hithadhoo
Elevation / Reference temperature	1.8 M (6 FT) / 30.1 degrees C
MAG VAR / Annual change	5 degrees W (1995)
Apron surface and strength	Surface: Concrete Strength: LCN 70
strength	Surface: Concrete Strength: LCN 70
ACL Location and elevation	Location: Runway mid-point Elevation: 1.8 M / 6 FT
AD Administration	Maldives Airports Company Limited
AFS / AFTN	VRMMYDYX
Types of traffic permitted	IFR / VFR
VRMM Operational hours	0230 - 0930
Fuel / Oil types	Jet A1
Hotels	3 (1.7 – 5 Km from Terminal)
Restaurants	20 (1.5 – 20 Km from Terminal)
Transportation	Private taxis / bus service
Medical facilities	Hospital (15 Km from airport)
Bank / Post	4 Km from Terminal



## EXTENSION OF RUNWAY AND TAXIWAY SYSTEM

The longest sectors planned for are direct flights flown from the UK, Europe and Japan. The aircraft fleet mix on these sectors is likely to be B767, Airbus A 330 and Airbus A 340. The following are the runway lengths required at the Airport reference temperature and elevation for maximum take off weights and maximum allowable landing weight.

AIRCRAFT TYPE	TAKE-OFF LENGTH (M)	LANDING LENGTH (M)
A330-300	3,200	1,800
A340-300	3,200	2,100
B767-200	1,900	1,600
B777-200	2,600	2,200
<b>B747-400</b>	<b>3,400</b>	<b>2,200</b>
A380	3,100	1,900

The longest runway length is required by B747-400 aircraft. These aircraft require 3,400m of runway length to take-off at maximum take-off weight. In order to not present any unnecessary future constraints it is proposed to extend the runway length to the maximum of 3,400m.

The present runway length is 2700 m and hence runway needs to be strengthened and extended by a further 700 metres in 2009 to accommodate unlimited numbers of wide-body aircraft movements (including CIP and VIP aircraft) in the immediate term as well as future international passenger and freight aircraft. These upgrades are necessary to ensure that the Airport has the capacity to accommodate fully laden wide-body aircraft operating to Europe and East Asian destinations.

With the increase in runway length it will be possible for a number of international wide-body aircraft including Boeing 747, Boeing 777 and Airbus A340 aircraft to land at Gan International Airport.





## APRON CAPACITY

Domestic flights, CIP jets, ad-hoc international flights and any diversion aircraft are currently accommodated on the single apron. Airline aircraft parking areas currently can accommodate up to ten scheduled services parked overnight at the apron on a common-user, airport-allocated basis. An expansion of this apron will be needed to accommodate ongoing growth in airline services. Initially, it is likely that this will be both west and east of the current apron.

The apron is also expected to be utilised for an expansion of domestic overnight and possible international airfreight services. An expansion of the facilities are required to handle additional aircraft activity, including possible larger aircraft operated by the international airlines.

To meet future demand for apron capacity additional land for apron is required. This apron capacity, as well as associated hangars and facilities, will be largely provided due south of the existing apron towards the MNDF area.

As additional aviation demand arises over the 20-year planning period, such as airfreight, aviation maintenance, General Aviation, military and other ad-hoc aviation activities, there is expected to be additional demand for apron capacity. These users require flexibility as to their ultimate location, but likely locations will be in the south of the current apron.





## Terminal Facilities

## TERMINAL FACILITIES

The Gan International Airport terminal is the public transport gateway to the South Province and the tourist resorts that get developed in Huvadho Atoll. In January 2008, a new terminal building was opened.

The completed new terminal building for the first time offered dedicated facilities for regular international flights, which commenced in 2008.

The terminal offers two baggage collection belts, two security screening points and a single bank of four check-in counters. There are no electronic check-in kiosks. Existing retail facilities include a cafe outside the terminal building and a confectionary counter inside the terminal.

The Airport terminal precinct will be the main area for processing arriving and departing passenger movements.

The terminal precinct will allow for future additions that can include passenger processing facilities for international flights. Like other modern terminals, the terminal will be complemented by a wide range of facilities in the area. All new buildings in the terminal precinct shall be designed to reflect Airport's role as a regional and national gateway and adopt design concepts suited to the small tropical island environment.



The following services are required in the proposed new terminal precinct:

- ▶ ATMs
- ▶ a newsagent/bookstore.
- ▶ a currency exchange outlet
- ▶ bank
- ▶ post and freight counters
- ▶ rental car and limousine hire counters
- ▶ a new coffee shop inside the main terminal
- ▶ restaurant and cafeteria
- ▶ new security checkpoints with additional screening
- ▶ expanded baggage collection belt;
- ▶ baggage locker area
- ▶ business-class lounge facility
- ▶ airline special lounges
- ▶ CIP lounge
- ▶ providing space for airline offices
- ▶ upgrading of terminal toilets
- ▶ a car park
- ▶ realign and expand road access to terminal facilities
- ▶ and establishment of proper taxi rank.

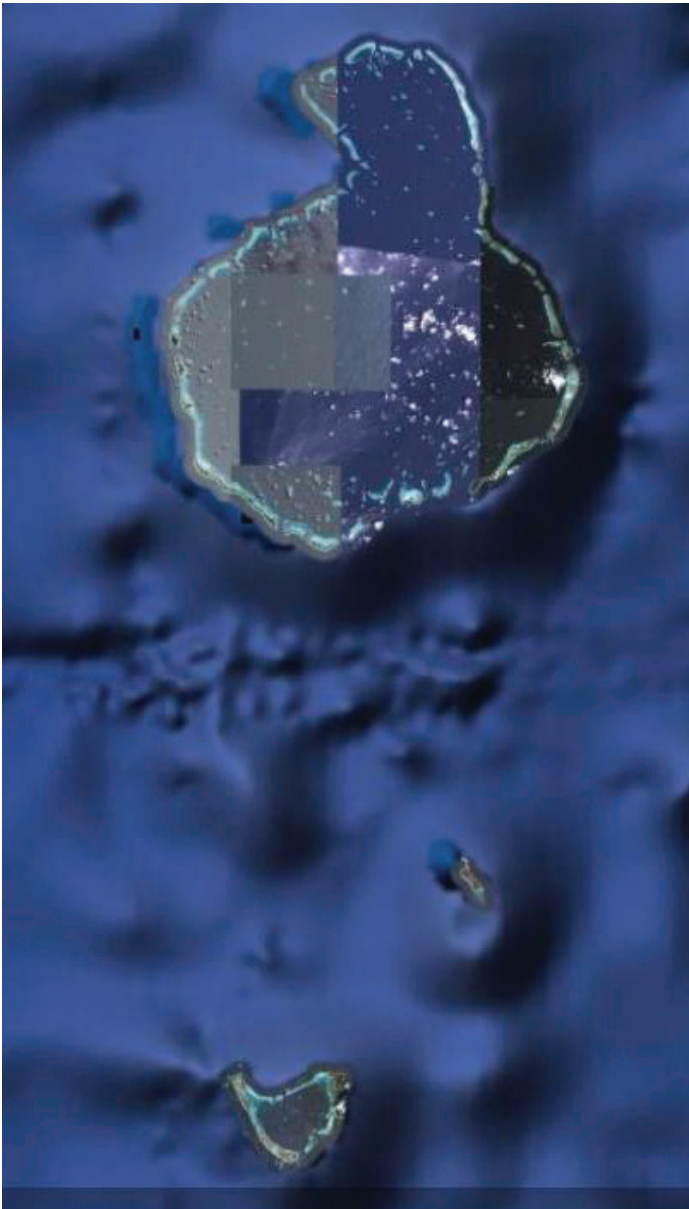




## Transport Hub

The integration of a number of passenger and freight modes of transport such as airlines, sea planes, helicopters, buses, ferries and yachts into a single location offers significant opportunities. The concentration of air, sea and road services in Gan offers a unique ability to seamlessly transfer between transport modes.

Gan has many features that supports the establishment of a transport hub and has necessary infrastructure such as jetties, access roads and harbor facilities. The transport hub will be built around the international services airport and linked through sea planes, southern ferries and bus services.



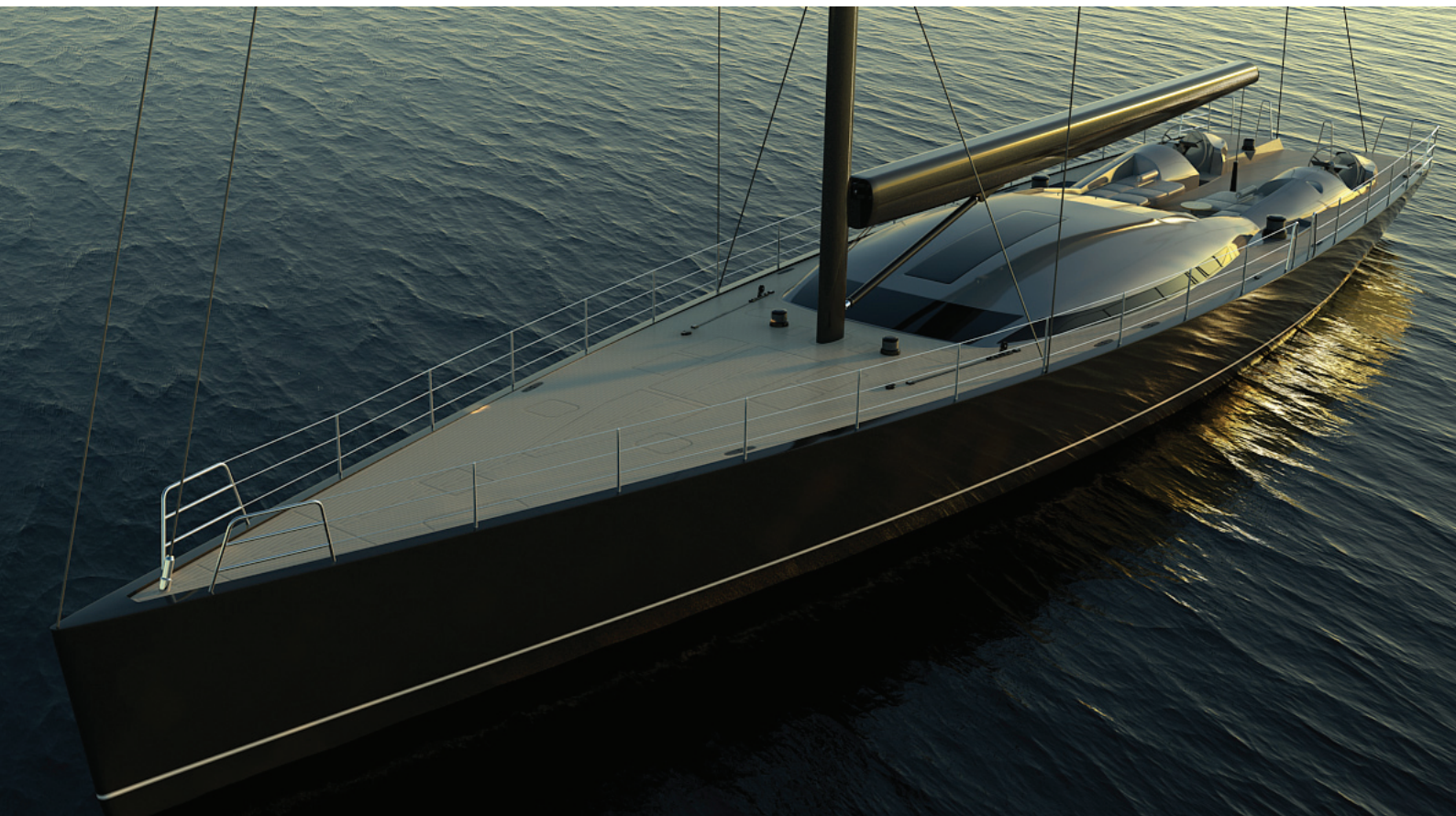
RESORT	BEDS	EXPECTED OPENING
G. Dh. Gazeera	44	Dec 09
G. Dh. Kaadedhoo - Airport Hotel	200	Dec 09
G. Dh. Kadavarehaa	200	Dec 10
G. Dh. Kaishidhoo	60	Jul 09
G. Dh. Konottaa	100	Jul 09
G. Dh. Lonudhuahutta	100	Jul 09
G. Dh. Maavedhdhoo	200	Dec 10
G. Dh. Magdhduvaa	200	Dec 10
G. Dh. Raalheodegella	200	Dec 10
G. Dh. Vatavarrehaa	150	Dec 08
GA Funamaudua	100	Jul 09
GA. Dhigurah	200	Dec 10
GA. Falhumaafushi	200	Jul 10
GA. Hadahaa	100	Jul 09
GA. Kodeymatheelaabadhoo	100	Dec 10
GA. Mahadhoo	100	Jul 09
GA. Meradhoo	44	Jul 10
GA. Munandhuvaa	48	Jul 09
GA. Vodamulaa	300	Dec 10
Gn. Fuaah Mulak - City Hotel	120	Dec 10
S. Gan - Ocean Reef	156	Operational
S. Hankede	120	Dec 10
S. Herathere	744	Operational
S. Villigilli	396	Dec 08
<b>Total Beds</b>	<b>4,182</b>	

- ▶ Providing a new, substantially convenient jetty opposite the arrivals of terminal building to enable easy access for flying passengers taking sea transport to other destinations.
- ▶ Repair and enhance access facilities at the main jetty of Gan and build an easy access ferry terminal with bus linkages as a logical and long-term strategy for intra and inter province ferry services to further enhance the Airport's transport hub concept.
- ▶ Land will be provided for establishing a water aerodrome and seaplane terminal in Gan to increase the attractiveness and business viability of tourism in the South Province and Upper South Province.





- ▶ Repair and maintain the fuel jetty in Gan as a critical infrastructure for aviation and other transport related fuel needs of Gan.
- ▶ Developing a yacht marina in Gan to enable seamless jet-limousine-yacht connections for business travelers and yachting enthusiasts
- ▶ Repair and enhance the facilities for cargo handling in the main jetty of Gan.







## Economic Potential

As well as a key element in the South Province's transport infrastructure, Gan International Airport is important to a number of key economic sectors, from tourism, trade, transport and aeronautical support services such as in-flight catering and aircraft maintenance. In addition, there could be significant positive economic impacts to the region from business, office and commercial development at Gan International Airport.

It is proposed that priority be given to allocate land for aeronautic needs and aviation related businesses.

- ▶ **Infrastructure:** the Airport (owner and manager); Provision of air traffic control; Airport security; Fire fighting services, Police, private security, terminal maintenance, terminal cleaning, telecommunications, runway sweepers and mowing contractors;
- ▶ **Airlines:** the Maldivian, Trans Maldivian, Maldivian AirTaxi, MNDF, General Aviation and charter operators as well as airfreight and courier companies;
- ▶ **Aviation support services:** flying training school, in-flight and terminal catering suppliers, cargo complex, cold storage, aircraft maintenance, and operators of aircraft hangars and jet fuel providers;





- ▶ **Tourism and leisure:** Yacht marina (terminal), transit hotel and conference facilities (equator village), spa, southern-most point hotel, Gan Beach Hotel, 18 hole Golf course, squash courts, tennis courts, gym and fitness center, saltwater pool, volley ball, and futsal field.
- ▶ **Retailing:** duty free shopping, souvenirs, cafes, supermarkets, convenience stores, service stations and terminal franchises (and other major and minor retail operators);
- ▶ **Office:** MNDF Southern Command HQ, Immigration, Customs, Health, Quarantine, a range of public sector and private sector office tenants;
- ▶ **Directly airport-related activities off-airport site:** this group of activities is more diverse, and includes the Airport components of bus service businesses, freight and aircraft charter firms, the Airport Cabs and limousine companies, booking agencies of the major airlines and air crew transport and accommodation.







# Environmental Management



Gan International Airport is recognized at national level as the most green airport in the Maldives. It has the most advanced landscaping in any of the airports and has several fully grown old trees and shrubs that were planted in the 1940s. Landscaping on the Airport has enhanced the vista for visitors and motorists, as well as for all employees and users of the Airport. Gan also has an area of sandy beach that adds value to the airports beautiful environment. Furthermore, the house reef of Gan has abundant coral reef biodiversity and offers great aesthetic value.

In the past, responsible measures were put in place to maintain and enhance the natural attractiveness of the green fields, beach and reef. Gan International Airport is committed to develop Gan as a Garden Airport. All future developments at airport will contribute to make it a safe, efficient and contemporary Airport in harmony with the environment through adopting innovative technologies, designs and processes.

Special attention would be given to protect and preserve the following:

- ▶ Old Trees (Dhanbu, Funa, Fithroanu)
- ▶ Trees planted by visiting dignitaries
- ▶ Fruit Garden
- ▶ Sandy beach
- ▶ House reef





In order to maintain the airport as a green garden airport special attention would be given to ensure:

- ▶ Existing building foot prints are used for new buildings
- ▶ Tree planting and landscaping
- ▶ A special programme is continued to plant more than 5,000 trees and 10,000 shrubs in Gan.



The following environmental initiatives will also be undertaken:

- ▶ Construction of extremely low energy consumption buildings,
- ▶ Construction of buildings which emit 75% less carbon dioxide than conventional buildings,
- ▶ Implementation of waste water recycling, essentially closing the loop on the water cycle, and saving water.
- ▶ On-site desalination of seawater and recharge of groundwater to reduce consumption from the groundwater aquifer
- ▶ Development of a protocol for the safe management of the protected species, the Addu White Tern and other birds that frequent Gan
- ▶ Mapping of grasses at the Airport to identify different qualities of grasses;
- ▶ Establishment of a comprehensive system to measure groundwater quality at the Airport;
- ▶ Development of standard safety, security and environmental procedures – standard airside and landside conditions to protect and mitigate the impact on environmentally significant and sensitive areas, and the prevention of pollution by contractors;
- ▶ Improved environmental awareness by contractors and tenants. A standard construction
- ▶ Environment Management Plan (EMP) will be developed for all contractors, outlining all the environmental management approaches required to be considered whilst tendering for and then managing projects at the Airport;
- ▶ Development of aircraft ground running guidelines in consultation with operators and Department of Civil Aviation





## Heritage Preservation

A brief cultural heritage assessment of Gan International Airport was undertaken. This included a desktop assessment and a field assessment. These assessments concluded that the Airport was of high heritage sensitivity. Many buildings of cultural significance were identified.

It is recommended to produce a Heritage Management Plan (HMP) for Gan International Airport. The Heritage Management Plan needs to be processed during the public consultation period of this Strategy prior to its approval. It is intended that the approved HMP will guide all future development at Gan International Airport.

All places on Gan International Airport must be assessed against pre-identified heritage criteria, and shall be managed according to heritage management principles. This assessment process has contributed to the understanding of the significance of the sites and buildings and the following are recommended to be included within the Heritage Management Plan:

- ▶ Maarangaa
- ▶ War memorial
- ▶ Astra Cinema
- ▶ Raiy Ge
- ▶ Gan Cemetery
- ▶ Gan Old Mosque
- ▶ Buildings, trees and artefacts related to Queen Elizabeth II and other dignitaries visits







## Services Infrastructure

A vibrant, modern and supportive service infrastructure will be created at the Airport to create substantial development opportunities and to allow businesses to respond to changing market needs, maintain viability and achieve growth in both aeronautical and other activities.

## SEWERAGE

Most areas in the airport are served by sewerage infrastructure with flows regulated through sewerage pumping stations. The system although designed effectively is now run down with inadequate maintenance. The service is currently provided by Gan Balahattaa Unit.

There is no existing sewerage infrastructure in parts of the proposed development areas. In some cases proposed developments will need to gravitate to a central pumping station, with sewage pumped to the existing collection system and connected to planned infrastructure.

The existing sewer connections into the sewer mains are operating with limited capacity available, so connecting additional facilities would require downstream augmentation works.

## STORMWATER DRAINAGE & FLOOD CONTROL

Stormwater catchments incorporating the runway and apron extend well beyond the airfield sites and cover the area north of the airfields. All areas of the Airport are currently supported by gravity stormwater collection systems comprising underground pipes and open drains. Stormwater drainage is directed from catchment areas into the adjoining lagoon.

Significant changes to stormwater flows will be needed to accommodate the expansion of the apron area. This will involve the provision of significant stormwater detention basin infrastructure as well as a major drainage diversion to the south. This Plan will need to be updated from time to time and guide the further development of stormwater infrastructure on the Airport.

## WATER SUPPLY

Pollution control is an integral part of any drainage system, and all developments at the Airport will need to meet the standards set out by the Ministry of Environment .

Water supply to the Airport is supplied by a single groundwater well situated at the south side of the runway. The existing airport water supply is through pumping water from the well to an overhead holding tank and distributed through a conventional gravity feed system. This system has been in operation since the 1960s. There is no system to measure the volume of water supplied and foul odour is indicative of over extraction from the pumping well. All onsite water pipes from the single supply point are not paid for and maintained by the Gan Balahattaa Unit. In addition,



the Airport has proposals for a desalinated water supply system with onsite pumping station at the supply point to maintain pressure across the network.

Since Gan International Airport is recommended to be developed as a Garden airport there will be significant need for irrigation water. In this context it is recommended to have two water recycling plants installed at the Airport to convert sewer water into drinkable-quality water. While recycled water may not be used for drinking, the water can be used for a range of uses including toilets and irrigation. These water recycling systems are not expected to have any negative environmental consequences as they will be designed with multiple safety layers.

## ELECTRICAL

High-voltage feeders supply power to the Airport from the STELCO central powerhouse located in Hithadhoo. The STELCO powerhouse has the capacity to meet growth in demand associated with developments on-Airport. Renewable power sources will be considered on a case-by-case basis.

## TELECOMMUNICATIONS

Dhiraagu provides landline, mobile and internet telecommunications services to all areas of the Airport. Wataniya provides mobile phone services. Upgrades to existing telecommunications infrastructure by the various carriers will be required over time to handle the anticipated growth and development at the Airport.



## Management Options

In the consultative process the following management options were extensively discussed:

- ▶ Consortium
  
- ▶ Southern (Regional) Airports Company
  
- ▶ MACL
  
- ▶ Addu Atoll Office
  
- ▶ State (Regional airports)
  
- ▶ Air line Call Home

The following are the recommendations based on the consultations.

### Corporatization - Consortium

Gan Island needs to be corporatized in order for its efficient management and to ensure optimization of the economic value of this prime land. The Government could create a consortium of existing Plc's in the country, which can be given the management of Gan.

### Shareholding

The shareholders in this corporation primarily could be the Government; represented by provisional administrations, the Maldives Airports Company Ltd. (MACL) and Island Aviation Services Ltd. (IAS). If other interested public companies such as Maldives Transport and Construction Company Ltd. (MTCC), Airport Investments Maldives Ltd. (AIM), State Trading Organization Plc. (STO), Maldives Tourism Development Corporation (MTDC), State Electric Company (STELCO), Maldives Water and Sewerage Company (MWSC) and others could be encouraged to become shareholders of the company. Apart from those, interested and capable private businesses should be encouraged to participate in the Gan airport consortium. A similar approach adopted during the creation of Maldives Stock Exchange Ltd., can be followed so that private entities can be encouraged to become shareholders.

## Assets and Investment

Current assets in the island including airport and non-airport facilities need to be valued and be declared as the government equity input in to the corporation. The new shareholders will inject funds or in kind contribution proportionate to their shareholding. New investments can be made from the newly shareholders injections and further investments can be done through debt financing once the balance sheet is drawn.

## Incentives for Participation

New shareholders will not join the proposed airport corporations unless there is a financial gain to be realized. In the current context the Gan airports may not generate sufficient money to attract outside shareholders. As such the island need to given to the consortium so that all the revenues accruing to these lands will become an income for the consortium so as to encourage and facilitate the required investments in the infrastructure.

## Management

Day to day management will be undertaken by a CEO / MD who will be given the task by representative board of the corporation. The board will include members from Government (regional council) and other shareholders.

It will be the responsibility of the management to plan and develop the airport in accordance with the strategy.