

Template for States' Action Plans on CO₂ Emissions Reduction Activities

This template has been developed to assist States intending to prepare and submit an Action Plan outlining their policies and actions for addressing CO₂ emissions from international aviation, to ICAO.

An action plan is a tool that a State can use to showcase and communicate both at the national and international level, its efforts to address GHG emissions from international aviation. The development of an action plan involves activities such as assembling a team, planning, and implementing various tasks. The structure of the action plan is intentionally simple in order to facilitate a straightforward communication of the actions that a State intends to take and their expected results.

This template is generic and can be used for action plans, ranging from simple compilations of data, to elaborate reports. The level of information presented should be sufficient to clearly demonstrate the effectiveness of the actions implemented by a State and for ICAO to determine the anticipated global benefits from these actions.

This template is divided into 3 sections:

- Section 1 – Background information and contacts
- Section 2 – Baseline and expected results
- Section 3 – Mitigation measures

Please note that in the References Part of the Guidance Material for the Development of States' Action Plans, there is a list of all available documentation to help States develop their action plan.

Please note that ICAO has developed a web interface to simplify the action plan submission to ICAO, and can be accessed at <https://portal.icao.int/APER> (this is the preferred method for submitting an action plan). Alternatively, if you are unable to access the portal, you may fill out the template in hard copy.

Once you have completed the template, you can submit it to ICAO via email at actionplan@icao.int, or by mail, by sending the completed template to the following address:

Environment Branch Air Transport Bureau
International Civil Aviation Organization
999 University Street
Montréal, Québec
H3C 5H7
Canada

ICAO assistance is also available at actionplan@icao.int, or through the ICAO Regional Office to which your State is accredited.

Section 1 - Contact and background information

Please refer to **Part 1, Introduction to Action Plans**, of the guidance document.

1.1 Contact Information

Please provide below the contact information for the focal points within your State for your action plan. Please note that the first point of contact entered should be the individual responsible for submitting the action plan to ICAO.

Name of the Authority Civil Aviation Authority

Point of ContactMs. Chanika Mannawaduge.....

Street Address No 04, Hunupitiya Road, Colombo 02.....

CountrySri Lanka.....

State/ProvinceWestern Province.....

CityColombo

Telephone Number+94 0112 358 803.....

Fax Number+94 0112 304 644.....

E-mail addressgmo@caa.lk.....

***Please note that you can provide as many contacts as necessary, for example, one individual per each mitigation measure.**

1.2 Current state of aviation within the State

1.2.1. Civil Aviation Industry in Sri Lanka

Alike other modes of transport; as an industry, Civil Aviation Sector in Sri Lanka had more or less been under government umbrella since inception. Civil Aviation Authority of Sri Lanka (CAASL) is the state's regulatory authority established as a public enterprise empowered to regulate all Civil Aviation activities in terms of the Civil Aviation Authority Act No 34 of 2002 and Civil Aviation Act No. 14 of 2010.

Airport and Aviation Services is a government owned subsidy whom is the sole service provider and the operator of international airport of Sri Lanka. It is also the air navigations service provider in the country. Furthermore the second international airport, under construction is expected to commence operations in early 2013. A city airport in Colombo commissioned its operations for regional corporate and private operations. In addition there are another fourteen (14) domestic aerodromes in Sri Lanka. Comparatively commercial air transportation is more liberalized than aerodrome and navigation operations. SriLankan Airlines (ALK) and Mihin Lanka (MHJ) are the two (02) state owned companies engaged in international scheduled commercial operations whereas Expo Aviation (EXV) is the only private company engaged in scheduled and non-scheduled international freight operations. Domestic travel operations were limited to few private

scheduled and charter operators such as Deccan Aviation, Expo Lanka, Daya Aviation until new operators such as *Sri Lankan air taxi services*, *Senok Aviation* and *Helitours* came into operations in year 2011. Followed by the post war developments in infrastructure and facilitates along with the growth in passenger numbers in year 2011 the said operators came into operations.

The air operators are accompanied with their own approved aircraft maintenance organizations (AMOs), where SriLankan Airlines undertakes limited AMO work for other foreign air carriers. Airline catering, ground handling and aviation fuel & lubricant suppliers remain with the state owned companies.

Flight training facilities are solely catered by private licence holders. Other training facilities are provided by both private and government institutes. The following Figure 1 illustrates graphical presentation of the civil aviation industry of Sri Lanka, based on the regulatory view point.

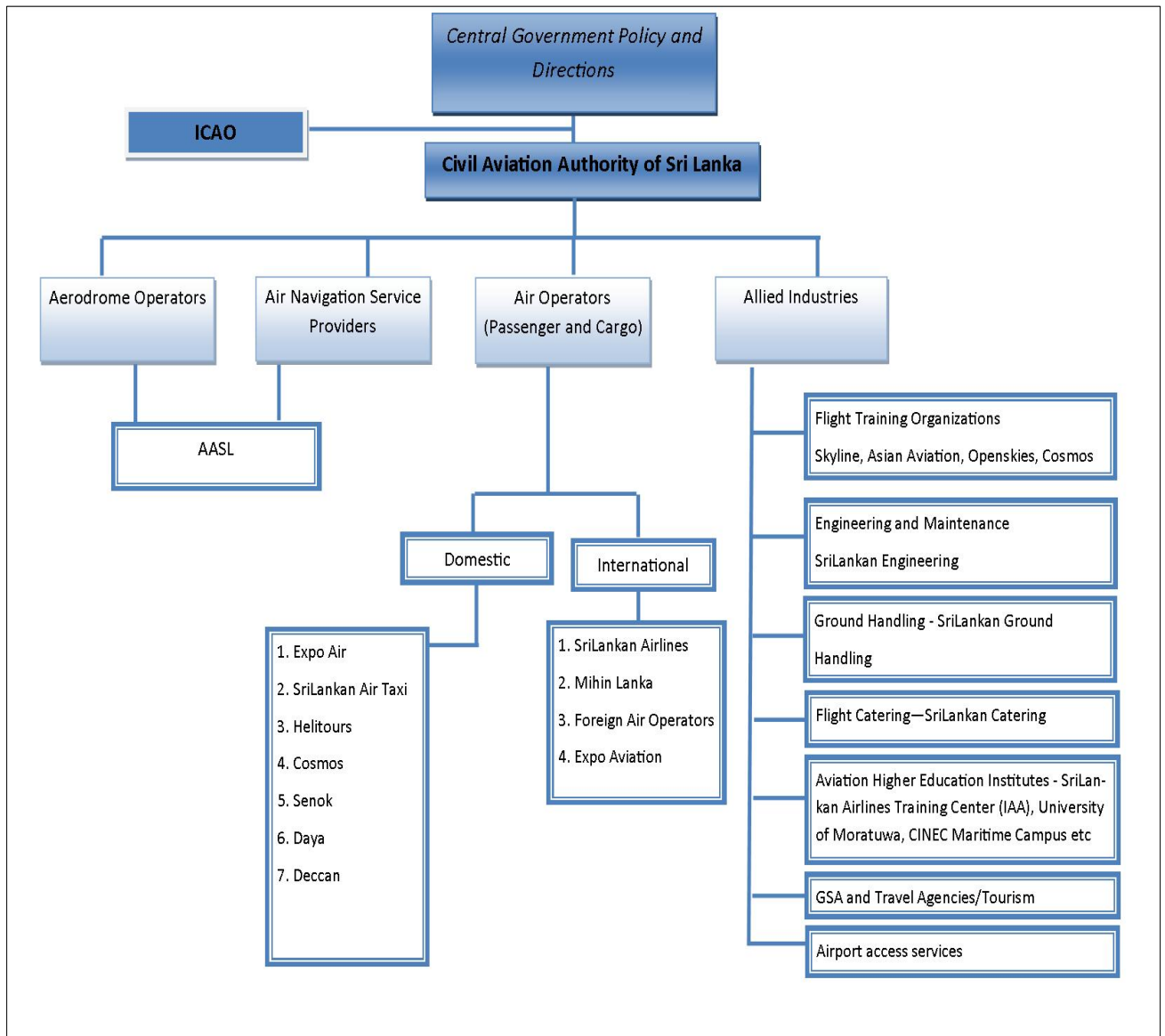


Figure 1

With the post war development policies Sri Lanka is envisaged towards a massive development phase, civil aviation has been clearly identified as a catalyst to propel economic growth through establishing its position in the region as an aviation activity hub. Some of the prerequisites to meet this requirement that have been taken to enhance the stakeholder capabilities include liberalizing the existing regulatory procedures and productive infrastructure investments for the stakeholders and sub sectors of aviation illustrated in Figure 1.

Sri Lankan aviation industry hasn't had any aviation accidents since year 2005. The USOAP Audit has found the effective implementation of eight (08) critical elements in the safety oversight system to be at 87.3 % which ranks the country at the fourth (4th) position in Aviation Safety in the APAC Region and 17th position at the global level.

Sri Lanka is served by twenty four (24) foreign air operators apart from the two (02) state owned airlines and connected to forty six (46) cities through the said foreign air operators.

In year 2011 the said three (03) international passenger and cargo operators have performed a total of 2.42 mn revenue tonne kilometres consuming 276.91 mn litres of fuel where the total fuel consumption and revenue tonne kilometres performed accounts for, 277.34 mn litres and 2.45 mn accordingly.

1.2.2. SriLankan Airlines

In establishing Sri Lanka's vision to be an aviation hub, the national carrier (SriLankan Airlines) has expanded its route network to sixty one (61) destinations including thirty four (34) direct routes and twenty seven (27) code sharing routes. The airline operates the above mentioned route network with an Airbus fleet of twenty one (21) aircraft which comprise of aircraft types mentioned in Table 1 below.

AIRCRAFT TYPE	NUMBER OF AIRCRAFT
A340-300	6
A330-243	7
A320-200	8

Table 1

1.2.3. Mihin Lanka and Expo Aviation

Mihin Lanka (Pvt) Ltd as state owned low cost carrier commenced its operations in April 2007 with one (01) A320 aircraft. Currently the airline operates to eight (08) direct destinations in Asia Pacific Region with a fleet of one (01) A320-232 and one (01) A321-231 aircraft. Expo Lanka Pvt Ltd as the third stakeholder engaged in scheduled and non-scheduled international freight operations operates a fleet of Ilyshin 18, Antonov 12 and DC 8-63 to destinations in Asia, Middle East and Africa.

1.2.4. Other Domestic Operators

As stated in section 1.2.1 above until year 2010 only three (03) Operators were engaged in Domestic operations such as Daya Aviation, Deccan Aviation and Expo Aviation. These domestic operators operate a fleet of total forty four (44) aircraft and six (06) helicopters.

Recreational activities are provided by three (03) hot air balloon operators with six (06) hot air balloons where the flying is sizeable.

The national carrier operates an Ari Taxi Service using an Amphibian Aircraft to the key domestic destinations within the country.

1.2.5. Growth of Aviation Industry

The positive growth in passenger arrivals and departures recorded at 6.1 Million for 2011; a 17% increase from 2010, which comprise of 0.85 Million tourist arrivals; a 30.7% growth compared to 2010 has significantly contributed to boost the domestic operations within the country to selected scenic destinations.

However in this backdrop of formulating an action plan to reduce the CO₂ emission level of the country more emphasis is placed on the international air operators segment on producing CO₂ at international level and on all the other three segments (Aerodrome Operators, Air Navigation Service Providers and allied industries) on their involvement to reduce CO₂ emission level.

Section 2 - Baseline and expected results

The objective of this section is to provide States with the necessary guidance on how to select measures to limit or reduce CO₂ emissions from international aviation. It includes sections on baseline establishment, feasibility and emissions reduction potential of measures, prioritization and selection of measures, expected results, metrics and implementation.

Section 2.1 below describes the total fuel consumption, international fuel consumption, total CO₂ emission and CO₂ emission (in Millions), resulting from international aviation and total civil aviation industry of Sri Lanka. ICAO specific definition, based on flight stage is applied to classify the operators as either international or domestic. Furthermore for the purpose of collecting data to the action plan Aggregated Methodology is employed in this action plan (Refer Annex A for a sample of data collection form).

2.1 Baseline

YEAR	TOTAL FUEL (litres)	INTERNATIONAL FUEL (litres)	TOTAL CO ₂ EMISSIONS (kg)	INTERNATIONAL CO ₂ EMISSIONS (kg)
2009	356,312,838	354,495,500	899,903,702	895,313,835
2010	437,991,700	437,836,250	1,106,191,838	1,105,799,233
2011	433,341,250	432,677,500	1,094,446,661	1,092,770,294

2.2 Expected Results

YEAR *	TOTAL RTK	INTERNATIONAL RTK *	TOTAL FUEL (litres)	INTERNATIONAL FUEL (litres)*	TOTAL CO ₂ EMISSIONS (kg)	INTERNATIONAL CO ₂ EMISSIONS (kg)*
2012	Nil	1,974,318	Nil	468,589,335	Nil	1,183,469,224.62
2015	Nil	2,507,849	Nil	590,988,275	Nil	1,492,599,988.11
2020	Nil	3,763,301	Nil	882,336,124	Nil	2,228,428,115.06

2.3 Metric used to measure progress

There are two metrics related to ICAO’s global aspiration goals, as stated in Assembly Resolution A37-19: “volume of fuel used per revenue tonne kilometres”; and “net CO₂ emissions”.

Sri Lanka has selected the “volume of fuel used per revenue tonne kilometres” as the matrix to monitor and measure CO₂ Emission Level after implementing the “Measure 6: Regulatory Measures/Other” as the mitigation action. Through this matrix it can be measured how much of CO₂ is emitted at the state level based on the revenue tonne kilometres performed by the operators and also the contribution of each operator at international and domestic level.

2.4 Supporting Documents

Refer Annex A and B for the supporting documents

Point of contact for Section 2:

Same as 1.1. of section 1

Instructions:

3.1 Description

Title	Measure 3
Description	Use of Hambantota International Airport (HIA) as the alternative airport over Trivandrum when operating to Sri Lanka.
Category	-
Measure	Improved Air Traffic Management and Infrastructure Use - Construction of additional runways
Action	Through the proposed measure it is expected to designate Hambantota International Airport (HIA) as the designated alternative airport. Through this measure the three (03) state owned international operators can reduce their fuel consumption by carrying less fuel which will either result in reducing the CO2 emission level of Sri Lanka
Start date	August 2012
Date of full implementation	January 2013
Economic cost	No economic cost involved for Civil Aviation Authority of Sri Lanka as the HIA project it is a state owned infrastructure development project funded by Airport and Aviation Services (Sri Lanka) Limited
Currency	N/A
Reference to existing legislation	N/A
If a new legislation is proposed	-
Compliance to the legislation Voluntary Mandatory N/A	Mandatory
Assistance needed	N/A
Assistance needed (you can select more than one) ○ Finance ○ Technology	Technology Technical support Education Research

ATTACHMENT A to State Letter AT 6/2.1 – AP 034/12 (AGA)

<ul style="list-style-type: none"> ○ Technical support ○ Education ○ Research ○ Other 	
Currency for financial assistance	N/A
List of stakeholders involved	Airport and Aviation Services (Sri Lanka) Limited SriLankan Airlines Mihin Lanka Limited Expo Aviation

Title	Measure 6
Description	Obtain assistance for research and development. Conferences, workshops and training programmes in relation to the subject of environment and CO2 reduction.
Category	-
Measure	Regulatory Measures/other
Action	Through the proposed measure it is expected to obtain possible assistance to conduct research and development in relation to reducing states' CO2 emission level, workshops, training programmes and conferences to educate the authority personnel and the industry stakeholders involved in other potential measures proposed by ICAO.
Start date	August 2012
Date of full implementation	August 2013
Economic cost	-
Currency	-
Reference to existing legislation	-
If a new legislation is proposed	-
Compliance to the legislation Voluntary Mandatory N/A	-

ATTACHMENT A to State Letter AT 6/2.1 – AP 034/12 (AGA)

Assistance needed	
Assistance needed (you can select more than one) <ul style="list-style-type: none"> ○ Finance ○ Technology ○ Technical support ○ Education ○ Research ○ Other 	Technical support Education Research
Currency for financial assistance	-
List of stakeholders involved	Airport and Aviation Services (Sri Lanka) Limited SriLankan Airlines Mihin Lanka Limited Expo Aviation

3.2 Incremental improvements / benefits for each measure

Please inscribe below the anticipated improvements/benefits associated with this specific measure. A measure can have several anticipated improvements for different years.

YEAR	2015	2020
Improvement in Total Fuels (Litres)	Nil	Nil
Improvement in Total Fuels (%)	Nil	Nil
Improvement in International Fuels (Litres)	4,230,599	4,446,360
Improvement in International Fuels (%)	-0.2%	-0.1%
Improvement in Total CO ₂ Emissions (kg)	Nil	Nil
Improvement in Total CO ₂ Emissions (%)	Nil	Nil
Improvement in International CO ₂ Emissions (kg)	386,505,871	571,144,186
Improvement in International CO ₂ Emissions (%)	26.1%	49.3%

Anticipated co-benefits	<ol style="list-style-type: none">1. Reduce fuel burn2. Gain in additional payload3. Reduction in CO2 emission level as a result of reduction in fuel burn
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3.3 Additional information

The incremental improvement/benefits are calculated based on measure 3 item d; construction of additional runways and taxiways if used solely to relieve traffic congestion. With the second international airport coming into operations the fuel saving over the current alternative airport (Trivandrum) is calculated for the three operators and then it is assumed that a minimum of 1% increase will occur in fuel saving each year as a result of new aircraft into the operators fleets and also with the introduction of new destinations and additional frequencies. Then the incremental improvements/benefits are calculated for 2015 and 2020. Furthermore it is also determined that for the action proposed through measure 6 it cannot be quantified on the fuel saving yet it is mandatory to implement measure 6 as it will provide a baseline foundation to the authority personnel as well the industry personnel for the potential future measures intend to implement.

3.4 Point of contact for this measure

Same as 1.1. of section 1

4.0. References

SriLankan Airlines, n.d, About Us, SriLankan Airlines, Accessed on 20th June 2012, http://www.srilankan.com/en_uk/coporate/fleet

Mihin Lanka, n.d, Mihin Lanka, Accessed on 20th June 2012, <http://www.mihinlanka.com/english/about/mihin-lanka>

— END OF ACTION PLAN —

CIVIL AVIATION AUTHORITY OF SRI LANKA
Obtain Data on Fuel Consumption of Operators to Calculate the CO₂ Emission Levels (Prepared Based on Fuel Form M of ICAO)

Year Ended :

Contact Person:

Operator's Name :

Contact Details:

Aircraft in fleet by type		International scheduled services			Domestic Scheduled			International non-scheduled services			Domestic non-Scheduled			Total services (international and domestic, scheduled and non-scheduled)			per cent of biofuels (total services)
Manufacturer, Model and Series	Version code (Note 1)	Fuel consumed (tonnes)	Tonne-kilometres performed (thousands)	Tonne-kilometres available (thousands)	Fuel consumed (tonnes)	Tonne-kilometres performed (thousands)	Tonne-kilometres available (thousands)	Fuel consumed (tonnes)	Tonne-kilometres performed (thousands)	Tonne-kilometres available (thousands)	Fuel consumed (tonnes)	Tonne-kilometres performed (thousands)	Tonne-kilometres available (thousands)	Fuel consumed (tonnes)	Tonne-kilometres performed (thousands)	Tonne-kilometres available (thousands)	
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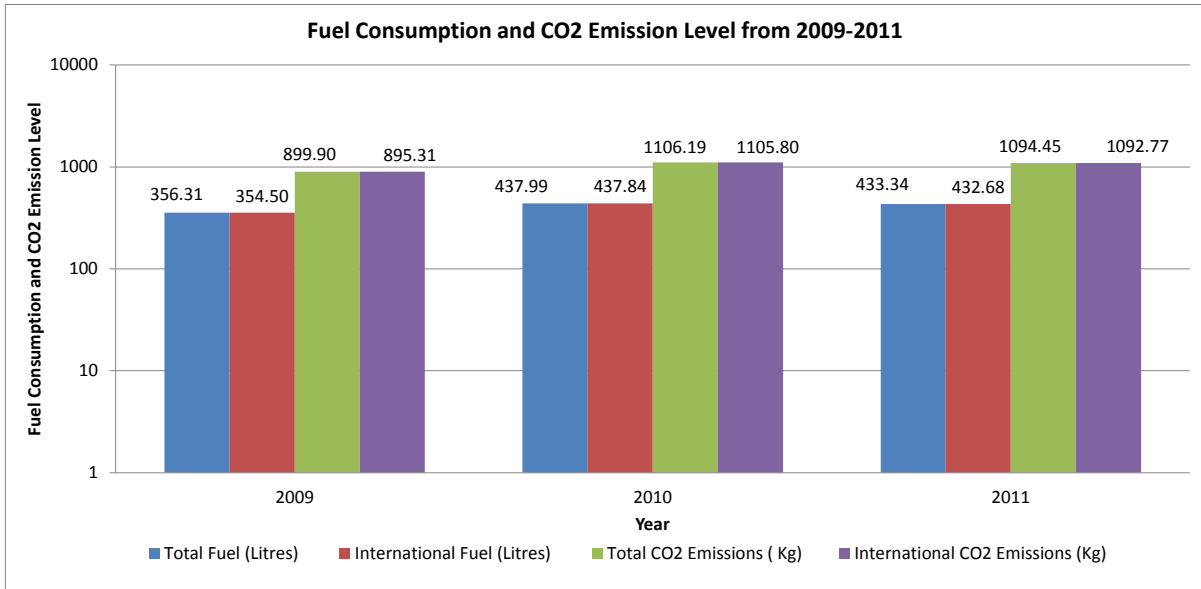
Version Code: Note 1
 P - passenger version of aircraft.
 F - freighter version of aircraft, no provision for passengers.
 M - combination ("combi") version of aircraft, i.e. aircraft capable of carrying both passengers and freight on the main deck.

Operator	Aircraft type	Version	International scheduled services (thousands)			Domestic scheduled services			International non-scheduled services (thousands)			Domestic non-scheduled services (thousands)			Total services (international and domestic) (thousands)			CO2 Calculations			CO2 Calculations (Total International = International scheduled + International non-scheduled)			
			Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Amount of Fuel Consumed (Kg)	kg CO2	Amount of fuel consumed (Liters)	Total International Tonne Kilometres Performed	Amount of Fuel Consumed (Kg)	kg CO2	Amount of fuel consumed (Liters)
SriLankan Airline	Airbus A320	P	35,583	141,667	213,275	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35,583	141,667	213,275	35,583,000	112,335,531	44,478,750			
SriLankan Airline	Airbus A330	P	104,688	481,968	709,847	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	104,688	481,968	709,847	104,668,000	330,436,876	130,835,000			
SriLankan Airline	Airbus A340	P	152,844	663,750	994,173	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	152,844	663,750	994,173	152,844,000	482,528,508	191,055,000			
SriLankan Airline	Air Taxi	P	N/A	N/A	N/A	403	Nil	Nil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	403	Nil	Nil	403,000	1,272,271	503,750			
Mihin Lanka	Airbus A320-232	P	23,049	Nil	48,310	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	23,049	Nil	48,310	23,049,000	72,765,693	28,811,250			
Mihin Lanka	Airbus A321-231	P	23,049	Nil	100,792	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	23,049	Nil	100,792	23,049,000	72,765,693	28,811,250			
Daya Aviation	Beechcraft Baron 95-C55	P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14	51	N/A	14	51	Nil	14,000	44,198	17,500			
Hellitours	Bell 412	P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	48	10	14	48	10	14	48,010	151,568	60,013			
Deccan	Bell 206 B III	P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	27	Nil	Nil	27	Nil	Nil	27,400	86,502	34,250			
Deccan	GA8 AIRVAN	P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7	Nil	Nil	7	Nil	Nil	7,200	22,730	9,000			
Senok	Eurocopter AS 350 B3	P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6	8,040	Nil	6	8,040	Nil	5,530	17,458	6,913			
Senok	Eurocopter AS 350 B4	P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7	9,974	Nil	7	9,974	Nil	6,860	21,657	8,575			
Expo Aviation	Ilyshin 18	F	1,850	443,000	Nil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,850	443,000	Nil	1,850,000	5,840,450	2,312,500			
Expo Aviation	Antonov 12	F	1,068	223,000	Nil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,068	223,000	Nil	1,068,000	3,371,676	1,335,000			
Expo Aviation	Fokker 27	P	N/A	N/A	N/A	19	11,000	Nil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19	11,000	Nil	19,000	59,983	23,750			
Expo Aviation	MC-Donnell Douglas 8-63	F	N/A	N/A	N/A	N/A	N/A	N/A	4,031	467,000	Nil	N/A	N/A	N/A	4,031	467,000	Nil	4,031,000	12,725,867	5,038,750				
Total	in millions		342,131	1,953,385	2,066,397	422	11,000	Nil	4,031	467,000	Nil	109	18,075	14	346,673	2,449,460	2,066,411	346,673,000	1,094,446,661	433,341,250	2,420,385	346,142,000	1,092,770,294	432,677,500

Operator	Aircraft type	Version	International scheduled services			Domestic Scheduled			International non-scheduled			Domestic non-scheduled services			Total services (international and domestic)			CO2 Calculations			CO2 Calculations (Total International = International scheduled + International non-scheduled)								
			Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Fuel consumed (tonnes)	Tonne Kilometres performed (tonnes)	Tonne Kilometres available (tonnes)	Amount of Fuel Consumed (Kg)	Kg CO2	Amount of fuel consumed (Liters)	Total International Tonne Kilometres	Amount of Fuel Consumed (Kg)	Kg CO2	Amount of fuel consumed (Liters)					
SriLankan Airline	Airbus A320	P	29,403	95,326	142,712	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	29,403	95,326	142,712	29,403,000	92,825,271	36,753,750	3,048,420	350,269,000	1,105,799,233	437,836,250				
SriLankan Airline	Airbus A330	P	117,854	450,940	669,059	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	117,854	450,940	669,059	117,854,000	372,065,078	147,317,500									
SriLankan Airline	Airbus A340	P	165,477	597,554	882,110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	165,477	597,554	882,110	165,477,000	522,410,889	206,846,250									
Mihin Lanka	Airbus A320-232	P	12,293	Nil	69,893	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12,293	Nil	69,893	12,293,000	38,809,001	15,366,250									
Mihin Lanka	Airbus A321-231	P	12,293	Nil	3,074	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12,293	Nil	3,074	12,293,000	38,809,001	15,366,250									
Daya Aviation	Beechcraft Baron 95-C55	P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12	45	Nil	12	45	Nil	12,160	38,389					15,200			
Deccan	Bell 206 BIII	P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	28	Nil	Nil	28	Nil	Nil	28,200	89,027					35,250			
Expo Aviation	Ilyshin 18	F	1,804	431,000	Nil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,804	431,000	Nil	1,804,000	5,695,228	2,255,000									
Expo Aviation	Antonov 12	F	1,953	408,000	Nil	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,953	408,000	Nil	1,953,000	6,165,621	2,441,250									
Expo Aviation	Fokker 27	P	N/A	N/A	N/A	84	49,000	Nil	N/A	N/A	N/A	N/A	N/A	N/A	84	49,000	Nil	84,000	265,188	105,000									
Expo Aviation	Mc Donnell Douglas B-63	F	N/A	N/A	N/A	N/A	N/A	N/A	9,192	1,065,600	Nil	N/A	N/A	N/A	9,192	1,065,600	Nil	9,192,000	29,019,144	11,490,000									
Total			341,077	1,982,820	1,766,848	84	49,000	Nil	9,192	1,065,600	Nil	40	45	Nil	350,393	3,097,465	1,766,848	350,393,360	1,106,191,838	437,991,700	3,05					350.27	1,105.80	437.84	
Total in millions																	0.35	3.10	1.77	350.39	1,106.19					437.99			

Year	Total Fuel (Litres)	International Fuel (Litres)	Total CO2 Emissions (Kg)	International CO2 Emissions (Kg)
2009	356.31	354.50	899.90	895.31
2010	437.99	437.84	1106.19	1105.80
2011	433.34	432.68	1094.45	1092.77

Year	Total Fuel (Litres)	International Fuel (Litres)	Total CO2 Emission (Kg)	International CO2 Emissions (Kg)
2009	356,312,838	354,495,500	899,903,702	895,313,835
2010	437,991,700	437,836,250	1,106,191,838	1,105,799,233
2011	433,341,250	432,677,500	1,094,446,661	1,092,770,294



Airline	Fuel Saving per week (all routes) Kg	Fuel Saving per year (all routes) Kg	Sector	No. of flights per Month	Fuel gain of fuel uplift	Total fuel gain per year
SriLankan Airlines	48,520	2,328,960	TRV/CMB	24	700	201600
Mihin Lanka	12,200	585,600	MLE/CMB	16	700	134400
Expo Aviation		403,200	BLR/CMB	4	700	33600
		3,317,760	MAA/CMB	4	700	33600
	in litres	4,147,200		Total Fuel gain for the year		403200

NOTE:

By assigning Hambantota International Airport as the alternate airport calculations are done by the airlines. Based on the calculations provided by SriLankan Airlines (SLA) for SriLankan Airlines and Mihin Lanka and Expo Aviation the above mentioned calculations for done.

Year	RTK(000): Performed Internationally	Year	Forecast (RTK)	Forecast (RTK) in Millions
2001	821,312	2011	1,823,010	1.82
2002	778,079	2012	1,974,318	1.97
2003	863,749	2013	2,138,185	2.14
2004	1,068,439	2014	2,315,652	2.32
2005	1,089,336	2015	2,507,849	2.51
2006	1,164,324	2016	2,715,998	2.72
2007	1,227,044	2017	2,941,424	2.94
2008	1,155,392	2018	3,185,559	3.19
2009	987,719	2019	3,449,958	3.45
2010	3,047,820	2020	3,736,301	
2011	1,823,010			

RTK Growth rate 2000-2011 8% As per the method 3, ICAO has provide using the RTK growth rate fuel consumption is forecasted

Year	Projected RTKs	Project International Fuel Consumption (L)	Project International Fuel Consumption (kg)	CO2 Emission in kgCO2	CO2 Emission in KgCO2 (Millions)
2011	1,823,010	432,677,500	346,142,000	1,092,770,294	1093
2012	1,974,318	468,589,335	374,871,468	1,183,469,225	1183
2013	2,138,185	507,481,819	405,985,456	1,281,696,083	1282
2014	2,315,652	549,602,344	439,681,875	1,388,075,681	1388
2015	2,507,849	595,218,834	476,175,067	1,503,284,687	1503
2016	2,715,998	644,621,451	515,697,160	1,628,055,935	1628
2017	2,941,424	698,124,439	558,499,551	1,763,183,083	1763
2018	3,185,559	756,068,126	604,854,501	1,909,525,659	1910
2019	3,449,958	818,821,086	655,056,869	2,068,014,534	2068
2020	3,736,301	886,782,484	709,425,987	2,239,657,841	2240

Expected Results = Projected fuel consumption - Fuel gains due to additional measures

Year	Forecasted RTKs	A Projected Fuel Consumption (L) (Internationally)	Fuel Gain Due to Additional Measures (L) (Internationally)	Expected Results (Fuel L)	Expected Results (Fuel L) in millions	Fuel Consumption in Kg	CO2 Emission in KgCO2 (after the measure)	CO2 Emission in KgCO2 (Millions)	CO2 Emission in KgCO2 (without the measure)	Improvement in CO2 Emission (after the measure)
2011	1,823,010	432,677,500	0	432,677,500	433	346142000	1,092,770,294.00	1093	1,365,962,868	273,192,574
2012	1,974,318	468,589,335	0	468,589,335	469	374871468	1,183,469,224.62	1183	1,479,336,531	295,867,306
2013	2,138,185	507,481,819	4,147,200	503,334,619	503	402667696	1,271,221,914.85	1271	1,602,120,104	330,898,189
2014	2,315,652	549,602,344	4,188,672	545,413,672	545	436330938	1,377,496,770.75	1377	1,735,094,601	357,597,830
2015	2,507,849	595,218,834	4,230,559	590,988,275	591	472790620	1,492,599,988.11	1493	1,879,105,859	386,505,871
2016	2,715,998	644,621,451	4,272,864	640,348,586	640	512278869	1,617,264,389.29	1617	2,035,069,919	417,805,530
2017	2,941,424	698,124,439	4,315,593	693,808,846	694	555047077	1,752,283,620.99	1752	2,203,978,853	451,695,232
2018	3,185,559	756,068,126	4,358,749	751,709,377	752	601367502	1,898,517,202.63	1899	2,386,907,073	488,389,871
2019	3,449,958	818,821,086	4,402,336	814,418,749	814	651535000	2,056,895,993.72	2057	2,585,018,168	528,122,174
2020	3,736,301	886,782,484	4,446,360	882,336,124	882	705868899	2,228,428,115.06	2228	2,799,572,302	571,144,186

Assumed that with a 2nd Int. airport coming into operations and being the emergency diversion airport the amount of fuel carried on board for emergency will be reduced and as a result the fuel burn of an aircraft will be lower. Based on the total calculated with the input of operators an increase of 1% is estimated considering new aircraft into adding to the fleet and increase of frequencies by the operators

Section 2.1 Baseline and Section 2.2 Expected Results

Section 2.1 of the action plan describes the total fuel consumption, international fuel consumption, total CO₂ emission and CO₂ emission (in Millions), resulting from international aviation and total civil aviation industry of Sri Lanka. ICAO specific definition, based on flight stage is applied to classify the operators as either international or domestic. Furthermore for the purpose of collecting data to the action plan Aggregated Methodology is employed in this action plan (Refer attachment A for the form used to collect data from operators). By collecting data from individual operators the emission factor 3.157 specified by ICAO the CO₂ emission is calculated. Furthermore by selecting the method 3 specified in ICAO guideline (Guidance Material for the Development of States' Action Plan) the RTK Growth rate was determined and then the expected fuel consumption using the same RTK growth rate. Using the formula given below the expected results column is calculated.

$$\textit{Expected Results} = \textit{Projected Fuel Consumption} - \textit{Fuel Gain Due to Additional Measure}$$

Metric used to measure progress

There are two metrics related to ICAO's global aspiration goals, as stated in Assembly Resolution A37-19: "volume of fuel used per revenue tonne kilometres"; and "net CO₂ emissions".

Sri Lanka has selected the "volume of fuel used per revenue tonne kilometres" as the matrix to monitor and measure CO₂ Emission Level after implementing the "Measure 3 and Measure 6". Through this matrix it can be measured how much of CO₂ is emitted at the state level based on the revenue tonne kilometres performed by the operators and also the contribution of each operator at international and domestic level.