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PROGRESS IN THE IMPLEMENTATION OF STATE ACTION PLAN FOR REDUCING EMISSIONS FROM INTERNATIONAL AVIATION

(Presented by Indonesia)

EXECUTIVE SUMMARY

This Paper provides current information on Indonesia's aviation environmental protection program and provides an update on the implementation of the Indonesia State Action Plan for climate change and mitigation of greenhouse gas (GHG) emissions in the aviation sector. It highlights recent achievements and future plans and seeks cooperation opportunities with other member States.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objective E – <i>Environmental Protection</i> .
<i>Financial implications:</i>	The activities referred to in this paper have been generated through Indonesia Government budget available in 2013 – 2016. The continuation of activities will be undertaken subject to the regular Indonesia Government resources available in 2017 – 2020 and/or from extra budgetary contributions
<i>References:</i>	Assembly Resolution A38-18, paragraph 11 inviting States to submit their new or updated action plans for reducing CO ₂ emissions from international aviation, on a voluntary basis, by June 2015.

1. INTRODUCTION

1.1 The 38th Session of the ICAO Assembly requested the member States to develop and submit their State Action Plan regarding actions to reduce GHG emissions in the aviation sector.

1.2 In July 2013, the Indonesian Directorate General of Civil Aviation (DGCA), Ministry of Transportation, submitted to ICAO its State Action Plan to reduce GHG emissions in the aviation sector. It updated it in June 2015 as requested by the Assembly, in accordance with Indonesia's commitment to support the ICAO global policy regarding aviation environmental protection. The latest update of data and information has been performed by the DGCA State Action Plan team in July 2016 and the final version is to be submitted before the 39th Session of the ICAO Assembly.

1.3 The implementation of such Action Plan has been fully based on cooperation with national and international stakeholders and this Information Paper aims to update the Assembly on its progress and achievements as well as to showcase successful models of collaboration which can be useful for other States.

2. BASKET OF MEASURES

2.1 The DGCA has established a State Action Plan team from various directorates within the DGCA Indonesia that has been mandated to collect data and information and to update progress in each measure. In addition, collaboration with national stakeholders, in particular the aircraft operators, airport operators, air navigation service providers and the national state oil company are essential for the successful updating of relevant measures.

2.2 The DGCA, in formulating its State Action Plan, took into account all measures introduced in the ICAO basket of measures to reduce CO₂ emissions from the aviation sector, as follows:

2.2.1 **Aircraft related technology improvements.** It was estimated that the aircraft fleets are increasing by 10 per cent to 15 per cent up to 2018 for the domestic fleet, and by 5 per cent each year up to 2017 for the international fleet, and that the additions to the fleets will be new technology aircraft.

2.2.2 **Use of sustainable alternative fuels for aircraft.** To promote the use of sustainable alternative fuel, the Government of Indonesia has been recommending to the state oil company to seriously prepare for producing bio-jet fuel. This action has been mandated in a Ministry of Energy and Mineral Resources Decree of 2015, which provides for 2 per cent blending of bio-jet fuels by 2018. A detailed feasibility study about the production of such alternative fuel has been performed with estimates of the required value of investment and production capacity. In addition, several possibilities for cooperation with more advanced countries and international organizations such as FAA, Airbus and IATA have been initiated for gaining experience and sharing technology and practices.

2.2.3 **Air traffic management and related infrastructure improvement.** A Performance Based Navigation (PBN) programme has been one of the priority programmes of the DGCA. Although the main target of PBN is increasing safety and airspace capacity, it is also well understood that PBN will certainly increase fuel efficiency and reduce emissions. The potential emissions reduction from the PBN programme and PBN procedures, which have been developed for an area including 21 airports (flight information in 2014) covering the Indonesian region from west to east, is estimated at about 40,336 tons of fuel saving, 20 per cent of which is from international flights.

2.2.4 **Operational efficiency program.** Two major national airlines have contributed to promoting the operational efficiency program through several actions. They include idle reverse on landing, one engine taxiing, take-off with packs-off, CONFIG 3 landing, and determining the closest alternate airports for reducing fuel uplift. From 2015 until mid-2016, it is predicted that about 123,000 tons of CO₂ reduction will result for both operators considered as domestic volunteers.

2.2.5 **Implementing market-based measures.** Indonesia has actively participated in recent ICAO multilateral and bilateral discussions regarding the establishment of a Global Market-Based Measure (GMBM) scheme for international aviation, and Indonesia hosted the ICAO Global Aviation Dialogues (GLADs) in April 2016 for the Asia Pacific Region with the theme “No Country Left Behind”. Taking into account one of the most important elements within the scheme of market-based measures, the DGCA Indonesia has issued a Director General instruction in April 2016 requiring all aircraft operators to submit their fuel consumption report on a monthly basis. The collected data will be used for the creation of a database/inventory system while the verification procedures need to be established.

2.2.6 **Establishment of regulatory measures.** The DGCA Indonesia in collaboration with national stakeholders has initiated the necessary regulatory measures to support the actions on promotion of sustainable alternative fuels utilization; to operate new technology aircraft and engines; PBN implementation; and start-up of preparation of an MBM legal instrument including MRV establishment. The Ministry of Transportation also seriously considers the establishment of an environmental unit to support the work related to aviation environmental protection policy and program measures.

2.2.7 **Airport improvement.** The DGCA Indonesia in coordination with the airport operators has promoted the utilization of solar-cell systems and installation of light emitting diodes (LEDs) at airports. In addition, the airport greening program is targeted to plant at least 300 trees at each airport. As of June 2016, all these actions have covered 57 airports in Indonesia.

3. PROGRAM SUPPORT

3.1 The DGCA Indonesia has taken several actions to expedite and streamline the implementation of measures in reducing CO₂ emissions from the aviation sector.

3.2 This program support is mainly focused on promoting cooperation with national and international stakeholders to implement the measures and capacity building programs to improve the relevant knowledge of both DGCA personnel and national stakeholders.

3.2.1 The DGCA Indonesia together with the ICAO Technical Cooperation Bureau (TCB) in 2013 has signed an agreement for technical assistance in the development and implementation of environmental measures for civil aviation for 3 years from 2014 – 2017 under the Ministry of Transportation budget of US\$ 2.1 million. Such cooperation is also aimed at strengthening the internal organization by developing a dedicated unit for sustainable development of civil aviation and an Environmental Management System within the DGCA Indonesia organization. Under this cooperative framework, the ICAO Environmental Branch has hosted three groups of DGCA staff under a fellowship program for capacity building of DGCA human resources from September 2015 until end of 2016.

3.2.2 The DGCA Indonesia and the US Federal Aviation Administration (FAA) signed in October 2015 a MoU *on the Promotion of Sustainable Aviation Alternative Fuels and Renewable Energy*. The MoU aims to promote developing and using sustainable alternative aviation fuels and develop additional environmental collaboration between the two nations, and was signed by the FAA Deputy

Administrator and DGCA Director General. To enhance this cooperation, several joint papers related to policy guidance on sustainable alternative fuels have been formulated. In addition, it is expected that by October 2016 two DGCA personnel will follow a fellowship program at the FAA Environment Office.

3.2.3 In collaboration with IATA, DGCA Indonesia has deployed a study regarding the economic impact which the use of 2 per cent bio-jet fuel would have for air ticket prices and passenger demand. The study performed by DGCA personnel has shown no significant impact from the use of 2 per cent bio-jet fuel, where with assumption of a 10 per cent air ticket increase, the passenger demand will decrease by 2 per cent. IATA and DGCA Indonesia are going to continue their collaboration through signing an agreement which will mainly focus on a capacity building program.

3.2.4 Since 2013, the DGCA Indonesia has been supported by Boeing in the development of PBN approach procedures at two airports, Ambon (AMQ) and Manado (MDO); as regards Airbus, several bilateral discussions have been held to deploy a collaboration program such as support on implementation of PBN procedure and research on sustainable alternative fuel.

3.2.5 Finally, in order to keep updated with the global discussions on aviation environmental protection, DGCA Indonesia has been actively involved in the ICAO Committee on Aviation Environmental Protection (CAEP). Indonesia has nominated a total of 20 experts to join and contribute within seven working groups in CAEP. Several Information Papers (IPs) and Working Papers (WPs) relevant to alternative fuels and the GMBM scheme have been submitted by Indonesia. In March 2016, during the 207th Council Meeting, Indonesia has been officially appointed to be an ICAO CAEP Member, after serving as Observer since 2012.

4. CONCLUSIONS

4.1 The DGCA Indonesia is committed to the implementation of ICAO policies and measures to actively contribute to the mitigation of climate change and reduction of greenhouse gas emissions from the aviation sector.

4.2 Indonesia considers cooperation with ICAO and other global partners as key support for the significant progress of its State Action Plan implementation.

4.3 Indonesia invites member States to keep cooperating on the achievement of global goals to reduce greenhouse gas emissions and to facilitate exchanges and mutual support for the implementation of their respective Action Plans.

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