



国际航空与气候变化组（GIACC）

第三次会议

2009年2月17日—19日，蒙特利尔

议程项目3：规划有待小组制定的行动和政策要素

第二工作组的报告

（由第二工作组主席提交）

1. 背景

1.1 航空气变组第二次会议上，设立了三个工作组，以审查拟议的国际民航组织行动方案的关键要素。第二工作组任务是查明可以实施的措施清单，以处理国际民用航空对气候变化的影响。

1.2 Raymond Cron 先生（瑞士）曾担任第二工作组主席直至 2008 年 11 月 1 日辞职。John Doherty 先生自那以来担任主席。

1.3 工作组的其他成员包括来自加拿大、印度、南非、联合王国和美国的代表，巴西也参加了。

2. 会议

2.1 第二工作组于 2008 年 10 月 30 日和 31 日在日内瓦举行了一次面对面的会议，于 2008 年 9 月 19 日、2008 年 11 月 21 日、2008 年 12 月 19 日和 2008 年 1 月 13 日举行了四次电话会议。

3. 成果

3.1 第二工作组的职权范围要求小组“编制一份列明各项措施的报告，其中包括定义和初步的实施范例。范例应是已经完成的，并提供每项措施可能实现的减排量的信息”。

3.2 第二工作组关于迄今所开展的工作报告载于附篇 A。报告包括一个潜在措施的表格，其中按以下类别列出了各项措施：

1. 与航空器有关的技术发展
2. 改进的空中交通管理和基础设施的使用

3. 更高效率的运行
4. 基于经济/市场的措施
5. 监管措施/其他

3.3 报告是在这样的基础上编制的，即表格将提供一份可用措施的清单，以及关于其潜在影响、费用和时间的一些指南。报告认识到，国际民航组织各国的情况各异，每个国家可以采纳的具体措施的组合也各不相同。报告的出发点是，各国将选择它将实施的一套措施，努力为国际民航组织商定的关于处理国际民用航空排放的目标做出贡献。报告包括若干支持实施的机制的建议。

4. 事项

4.1 **潜在措施：**各成员对许多单项措施的潜在影响、费用和时间框架存在分歧。工作组成员试图在总的（全球）国际航空体系下参照措施的整个周期来评估影响、费用和时间。在不能获得明确数据的情况下，评估结果各不相同。本报告无意在不同意见中挑选一个中间立场，而是阐述了小组成员提出的不同意见的范围。

4.2 **业界的意见：**向关键的业界代表小组提供了报告中的潜在措施表（第 3 章）空白模本，并请其发表意见。通过航空运输行动组（ATAG）转交的业界的答复提供给了各位成员，供其在评估中考虑。在业界报告中列举的详细措施未直接纳入工作组的报告中，因为认为工作组报告的表格总体上涵盖了业界报告中所查明的措施，虽然不如那么详细或未分别阐述。

4.3 **对发展中国家的援助：**工作组各成员之间存在的非常重大的问题就是发展中国家对实施措施的期望值。各成员之间对于如何将《联合国气变框架公约》和《京都议定书》的条款转变成国际航空的措施存在不同意见。其他成员强调了非差别待遇的原则，这是《芝加哥公约》和国际民用航空市场运行的核心原则。

5. 航空气变组的行动

5.1 请航空气变组：

- a) 在拟定行动方案时考虑第二工作组的报告；和
 - b) 注意第 4 段所述并可能需要航空气变组全体进行进一步审议的事项。
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限制或减少航空排放的措施

航空气变组第二工作组的报告

2009年1月14日

报告纲要

1. 引言
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附篇A 航空气变组第二工作组的职权范围

第二工作组的参加方

澳大利亚

巴西

印度

南非

瑞士（自2008年11月1日起为联合王国）

美国

1. 引言

第36届大会要求理事会组建国际航空与气候变化组（GIACC），以制定一个关于处理国际民用航空对气候变化的影响的积极进取的行动方案。在为组建航空气变组提供指南时，大会寻求发展中国家和发达国家公平的参与，制定一个基于协商一致的行动方案，反映出所有缔约国的共同愿景和强烈意愿。

在2008年7月举行的航空气变组第二次会议上，决定建立三个工作组，审查拟议的国际民航组织行动方案的各关键要素。第二工作组的任务是查明可以实施的措施清单，以处理国际民用航空对气候变化的影响。

根据第二工作组的职权范围（附篇A），本报告向航空气变组提供了关于措施和良好做法的范例，各国可以借鉴，以处理国际民用航空对气候变化的影响。措施清单旨在于向国际民航组织各缔约国提供它们可以采取的可能的行动的信息，以及这些措施对处理气候变化的潜在贡献。清单并非指令性的，希望每个国家自行决定采取的措施的组合，以及实施的方法。

报告包括了一些缔约国提供的通过不同措施可能实现的减排收益的大致估算，以及实现这些收益的相关费用。报告还说明了实施特定措施的大致时间跨度，以及何种机制可能有助于各国实施，其中包括国际民航组织可能发挥的作用。重要的是，已考虑了在国际民用航空和气候变化方面向发展中国家提供援助的机制。

报告所列的许多措施已经在实施之中，要么是作为各缔约国处理国际民用航空对气候变化的影响的政策的一部分，要么是由于减少燃油消耗的商业压力的驱动，从而减少排放。另一方面，一些政府的干预和方案有很大的潜力引发“额外行动”，即除非如此否则不会采取的行动。虽然重要的是要对业界采取的减排行动的结果予以承认和量化，但是，航空气变组也许觉得富有成果的做法是将重点放在国际民航组织成员国政府可以做出积极干预的那些措施上。

重要的是，管理国际民用航空碳足迹的战略不应被简单地视为采取能直接减排的措施。许多起间接作用的政府举措也可以导致排放量的减少。表格包括的举措涉及的领域有加强对民用航空对气候变化的影响的认识，制定一个政策框架，鼓励民用航空业和/或个人采取行动，并树立公众的信心，相信正在采取措施，抑制航空业的净额碳足迹。

国际民航组织的战略应当基于这样的做法，即在技术上可行、在环境方面有效、和在经济上可以生存。我们需要寻找能广泛适用和互用的做法，而同时足够灵活，以符合所有缔约国自己的需要。

对国际民用航空在气候变化方面的作用的关切主要是由于该行业预测的持续增长。虽然在技术和运行做法方面已经实施的改进已经提高了燃油效率并减少了排放的增长率，而且一些人认为未来的改进可以实现所需要的进步，但另外一些人认为，可能需要采取额外的措施，以处理航空排放的增长。

处理排放的措施应考虑到对安全的任何潜在的影响，安全决不能受损，同时还应虑及对航空器噪声的潜在影响。旨在解决一种排放类型（例如二氧化碳）或者一种与排放有关的问题（例如气候变

化)的措施,应考虑到对其他类型排放(例如氮氧化物)或其他与排放相关的问题(例如当地空气质量或噪声)的潜在影响。如果处理排放的措施能尽可能在全球协调一致的基础上制定,这对所有方都有利。

在审议本报告所列举的潜在措施时,应注意到,国际民航组织已经查明并提供了关于一系列措施的信息。航空气变组的工作应在现有的工作基础之上推进,并建议进一步细微调整的领域,以及需要进一步开展工作的领域,以避免重复努力或者危害到已经开展的有价值的工作。

对于处理国际民用航空排放的具体战略,尚未达成协商一致。本报告反映的做法是,各国将决定适合于它们的[市场][行业]的措施,并决定实施的方式和时间,以便在航空气变组的工作结束后实现国际民航组织界定的目标。

与其他行业不同,发达国家的工业更先进的这一模式并不能完全与国际航空的情况吻合。事实上,一些拥有最多的现代化机队的最大的航空公司是在发展中国家。对于发展中国家的国际航空承运人应在何种程度上实施减排措施,工作组各成员之间存在不同意见。做此陈述后,小组亦认识到,有必要强调对发展中国家的援助,以处理国际民用航空的排放问题。建议包括由发达国家和国际民航组织对各发展援助机构施加影响,在援助开发更高效的空中交通和机场基础设施方面给予更多的优先,并且应在管理对环境的影响方面提供培训和技术援助。此外,建议所有国家和国际民航组织鼓励国际开发银行和非政府组织将精力和资源集中在已查明的措施上。

在实施具体的措施时,应鼓励各国以最少的费用实现最大的环境效益,以此来实现国际民航组织的目标。这将确保用于处理国际民用航空对气候变化的影响的资源将产生最大效益。

2. 框架原则

各国可以使用多种措施来处理其国际民用航空业产生的排放。国际民航组织应鼓励各国采取从商定的国际框架中产生的战略来处理这些排放。在这种战略中,将认识到虽然各国最终负责选择适合它们[市场][行业]的具体措施,但是对于像民用航空这样的全球行业,一个国际性的商定的框架将增强合作和效力。

在实施具体的措施时,应鼓励各国适用以下原则:

- a) 每个国家保留选择适合其[市场][行业]的措施组合的最终权力,作为与全球理想目标一致的对限制或减少温室气体排放的贡献。
- b) 认识到在处理国际民用航空温室气体排放方面,采取以下混合措施可能是有帮助的:包括替代燃油在内的技术发展(航空器和发动机)、改进空中交通管理和基础设施的使用、提高运行效率、监管措施和适当的基于市场的措施。
- c) 各国应寻求以最具有成本效益的方式实现最大的环境效益,以此来实现全球理想目标。这将确保用于处理国际民用航空气候变化影响的资源将实现最大效益。每个国家在制定其国际民

用航空部门的发展计划时应仔细考虑框架的每个要素，同时虑及各潜在解决办法之间的相互依存，并在更广泛的气候变化方案中予以考虑。

- d) 应鼓励各缔约国在各领域在本框架范围内协作，加快国际民用航空业环境效绩的改善。
- e) 认识到实施不同措施可能没有“统一日期”，因此将以时间段标明时间框架。虽然各国应寻求协调一致采取国际性的措施，但不同措施的适当性、时间跨度、实用性和可用性对于每个国家和地区有所不同。
- f) 关于便利各缔约国进行实施的机制，国际民航组织应继续起传统的作用，制定技术标准、政策指南，并鼓励其缔约国之间达成适当的法律安排。国际民航组织的作用应是对联合国气变框架公约作用的补充，国际民航组织还应发挥积极作用，汇集和报告各缔约国的信息，监测实现商定目标的进展情况。
- g) 认识到发展中国家在制定和实施各项措施方面的特殊情况。
- h) 考虑到包括国家、航空公司、航行服务提供者、机场和制造商在内的所有利害攸关方在制定和实施各项措施方面的各自的作用。
- i) 在整个过程中包括决策的形成中与所有利害攸关方协商，并向公众适当通报拟将采取的行动。
- j) 建议把环境管理系统（EMS）作为一种方式，这要求各国和民用航空利害攸关方制定出系统化的手段，在其决策过程中衡量和处理其运营和业务的环境问题。
- k) 各国应在国际民航组织已完成的工作上推进，其中包括航空环保委完成的工作（例如，第303号通告）。

3. 潜在措施表

以下表格列出了工作组已查明的供各国考虑的一系列重大的潜在措施。表格是根据工作组成员提供的意见汇编的，并包括成员对潜在影响、费用和时间跨度的评估摘要。要求各成员在全球基础上来衡量每项措施的相对效益、费用和时间框架，而不是根据对其自己国家的影响、费用或时间框架来衡量。这些评估旨在查明对整个（全球）国际航空系统的排放的潜在影响，并包括特定措施的整个周期。认识到各国情况各不相同，航空业和经济状况各异，在实施表格的许多措施方面的进展程度也将有所不同。

向关键的航空业代表小组提供了表格的空白副本，并请其发表意见。通过航空运输行动组（ATAG）转交的业界的答复提供给了成员，供其在评估中考虑。

评估不可避免地涉及到重大的判断要素，各成员的答复也大相径庭。表格中的评估摘要表明了答复中提供的不同的评估情况。

对所示的每项措施的适用潜力进行评估时，以下列标准为基础：

- 潜在的相对收益：低 < 2%；中 2-5%；高 5-10%；很高 > 10%；
- 可能的时间跨度：短期：< 5年；中期：5-15年；长期 > 15年（措施可供使用的时间；在此时间跨度内不一定实现全部效果）；
- 预计费用：低、中、高、很高。

1) Aircraft-related technology development

Measure	Definition	Implementing entity	Examples of Implementation	Potential Relative Gains	Estimated costs	Possible timescales - implementation	Possible assistance to developing countries	Comments
Aircraft minimum fuel efficiency standards	Near-term fuel efficiency standard, setting non-demanding requirements	ICAO		Low to medium	Low to medium	Medium	Transitional arrangements could apply.	Would provide a stronger signal than historic reliance on high fuel costs to increase efficiency. Experience of minimum fuel standards for automobiles in the U.S. has shown this is not nearly as effective as market incentives in providing improvements in fuel efficiency.
Aggressive aircraft fuel efficiency standards, setting standards for the future	Longer-term fuel efficiency standards to encourage innovation	ICAO		Medium to high	Medium to high	Medium to long	Transitional arrangements could apply.	Would provide an aggressive signal rather than historic reliance on high fuel costs to increase efficiency. Aircraft fuel efficiency improvements

								without corresponding system level improvements will limit overall gains.
Purchase of new aircraft	Progressive replacement of ageing aircraft fleet with aircraft that perform well to current standards	Airlines/States	Multiple airlines	Very high	High	Medium to long (especially for fleets in developing countries)	Finance and technology	Commercial decisions of airlines could be assisted by State incentives. Airlines with oldest fleets may have greatest difficulty raising funds for new aircraft. There is a need to retain fair competition. Could be assisted by State incentives.
Retrofitting and upgrade improvements on existing aircraft	Improve fuel efficiency through development of modifications such as winglets, riblets, replacement of engines, avionics, etc.	Manufacturers and airlines/States	Multiple airlines	Low to high	Low to medium	Short to medium	Finance and technology	Commercial decision dependent on availability of particular retrofits, their performance characteristics, and timing. Could be assisted by State incentives.
Optimising improvements in aircraft produced in the near to mid-term	Maximising contribution of lightweight materials, engine technology, auxiliary power	Manufacturers and airlines/States		Low to medium	Medium	Short	Finance and technology	Commercial decision between airlines and manufacturers.

	sources in aircraft planned for the near future							Could be assisted by State incentives.
Avionics	Next generation avionics systems supporting future ATM system approaches.	Manufacturers, airlines, ICAO, States	To be developed in liaison with NextGen and SESAR projects. Support for R&D through demonstration phase. Accelerated certification process after completion of tests. Global standards and recommended practices to achieve harmonized and timely introduction.	Low to medium	Medium	Short to medium	Finance and technology	Could be assisted by State incentives.
Adoption of revolutionary new designs in aircraft/engines	Designs such as open rotor, blended wing body, improved laminar flow, etc	Manufacturers and airlines		High to very high	High	Medium to long	Finance and technology	Could be assisted by State incentives.

Alternative Fuels	Development of biofuels or other fuels with lower carbon lifecycle content; and associated standards for alternative fuels.	States; manufacturers; petroleum Industry; airlines	USA (CAAFI - Commercial Aviation Alternative Fuel Initiative standards).	Medium to very high	Medium to high	Medium to long	Should be available for use at all major airports. Developing countries may be more suitable to new infrastructure.	Must be sustainable and consider full life cycle environmental costs Could be assisted by State incentives.
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2) *Improved air traffic management and infrastructure use*

Measure	Definition	Implementing entity	Examples of implementation	Potential relative gains	Estimated costs	Possible timescales	Possible assistance to developing countries	Comments
More efficient ATM planning, ground operations, terminal operations (departure and arrivals), enroute operations, airspace design and usage, aircraft air navigation capabilities.	Measures to improve pre-departure planning, ground operations, collaborative decision making, use of optimum flight levels, optimum routings, flexible tracks and fuel efficient departure and approach procedures, fully utilize RNAV/RNP capabilities, flexible use of civil-military airspace.	Air Navigation Service Providers	Australia; RSA; Europe (Single European Sky); and USA (System Wide Information Management (SWIM prototype release); NAS comprehensive for NextGen (medium term)	Low to medium	Medium to high	Short to medium	Finance and access to technology Technical support through education and training.	Aeronautical Information System (AIS) intensive with need for advance ATM communication and aircraft equipage. Could be assisted by State incentives.
More efficient use and planning of airport capacities	Measures to improve taxiing, parking, to enhance terminal support facilities and to plan new capacities when bottlenecks cause environmental problems.	Airports		Low	Medium to high	Short to medium	Technical support through education and training.	Could be assisted by State incentives.

Conversion of airport infrastructure and ground support equipment to cleaner fuels	Electrical/ gas/ biofuels operated ground vehicles	Airports	USA (VALE Program)	Low	Low	Short	Finance and technical assistance	This is primarily a domestic emissions reduction measure but with benefits for international aviation as well.
Construction of additional runways	For relief of existing congestion rather than for increasing capacity	Airports	USA	Low to high	High	Medium to long	Finance and technical assistance	Could be assisted by State incentives. Increased capacity will encourage increased emissions unless total movements are constrained.
Enhanced terminal support facilities	GPUs (replacement by direct electrical supply), preconditioned air	Airports	USA	Low	Low to medium	Short to medium	Finance and technical assistance	Could be assisted by State incentives.
Improved public transport access	Improved public transport access to airports	Airports; States	USA; EU	Low to high	Medium to high	Short to long	Finance and technical assistance	This is primarily a domestic emissions reduction measure but with benefits for international aviation as well.
Collaborative research endeavours	Efforts to implement international air traffic management improvements (AIRE and ASPIRE)	Air Navigation Service Providers, airlines, States	USA, Europe, Australia, New Zealand	Low	Low to medium	Short to long	Finance and technical assistance	Could be assisted by State incentives.

3) *More efficient operations*

Measure	Definition	Implementing entity	Examples of implementation	Potential relative gains	Estimated costs	Possible timescales	Possible assistance to developing countries	Comments
Best practices in operations	Minimising weight, improving load factors, reduced speed, improved ground operations, training pilots	Airlines		Low to medium	Low	Short	Technical assistance and training	
Optimised aircraft maintenance (including jet engine cleaning/washing)	Ensure maintenance schedule maximizes environmental performance	Airlines; manufacturers	USA (P&W Program)	Low	Low	Short	Technical assistance and training	Already in place for certain airlines
Selecting aircraft best suited to mission	Tailoring aircraft selection to use on particular routes/missions (long haul, short haul, etc.)	Airlines		Low to medium	Medium	Short to long term	Technical assistance and training	Can often be difficult given the variety of missions particular aircraft are used for by an airline. Implementation depends on fleet planning cycle.

4) *Economic / market-based measures*

Measure	Definition	Implementing entity	Examples of implementation	Potential relative gains	Estimated costs	Possible timescales	Possible assistance to developing countries	Comments
Voluntary inclusion of aviation sector in emissions trading scheme	Voluntary carbon trading	States; airlines; airports; Air Navigation Service Providers	Japan,	Low to medium	Low to high	Short to long	Not applicable for voluntary carbon trading.	Benefits depend on the obligations within the program.
Incorporation of emissions from international aviation into regional or national emissions trading schemes, in accordance with relevant international instruments	Refer to ICAO Guidance on the Use of Emissions Trading for Aviation (Doc 9885)	States; airlines	EU (from 2012)	Low to very high	Low to high	Short to medium	Exemptions or minimum thresholds could apply.	Benefits and costs depend on the obligations and structure within the program. Potential legal issues depending on how this is implemented.
Establishment of a multilateral emissions trading scheme for aviation which allows trading permits with other sectors, in accordance with relevant international instruments		Airlines; States; ICAO		Low to very high	Low to high	Medium to long	Exemptions or minimum thresholds could apply at least in initial stages.	Depends on how the program is defined and obligations under it. Likely to be more complex and cost more than incorporation into existing schemes. Potential legal

								issues depending on how this is implemented.
Establishment of a framework for linking existing emissions trading schemes and providing for their extension to international aviation, in accordance with relevant international instruments	CAEP is developing guidance in this area	States; ICAO		Low to very high	Low to high	Medium to long	Exemptions or minimum thresholds at least in initial stages.	Depends on how the program is defined and obligations under it. Likely to be less complex and cost less than a stand alone scheme. Potential legal issues depending on how this is implemented.
Emissions charges or modulation of LTO charges, in accordance with relevant international instruments	This covers fuel and NOx charges today	ICAO; States	CH, Europe, USA, Japan, India	Low to very high	Low to high	Short to medium	Exemptions or minimum thresholds at least in initial stages.	Depends on the level and nature of the charge and its uses. Potential legal issues depending on how this is implemented.
Positive economic stimulation by regulator: research programs, special consideration and government programs/legislation and accelerated	This covers NASA and European research efforts.	States; research agencies; airlines; manufacturers	Aeronautics research in engines, airframes, avionics, air traffic management and alternative fuels in various	Low to very high	Medium to high	Medium to long	Finance and access to technology.	Governmental R&D to foster noise and emissions gains has been a traditional focus and helped provide the technology gains from better

depreciation of aircraft			countries around the world.					aircraft.
Accredited offset schemes	Measures to facilitate purchase of carbon credits by organization or individuals to offset emissions from individual air travel	States; airlines; companies; passengers	Passengers as individuals or through employers	Low to very high	Low (to industry)	Short	Voluntary participation.	Success of these schemes strongly influenced by passenger confidence in quality of the offset
Explore extension of CDM	UNFCCC agreement needed to apply credits from CDM to international aviation	States; UNFCCC		Low to very high	Low to medium	Medium	CDM Projects in developing countries	This could prove difficult given the wide variety of potential applications.
Taxation of aviation fuel		States	USA; Netherlands; Norway	Low to high (depending on level of Tax)	Low to high (depending on level of Tax)	Short		Domestic taxes may provide resources for initiatives which benefit international aviation as well as domestic.

Footnote

In 2001, the Assembly endorsed in Resolution A33-7, “the development of an open emissions trading system for international aviation” requesting the Council to take “into account the interests of all parties concerned, to evaluate the costs and benefits of the various measures with the goal of addressing aircraft engine emissions in the most cost-effective manner (and)...develop as a matter of priority the guidelines for open emissions trading for international aviation focusing on establishing the structural and legal basis for aviation’s participation in an open trading system.”. In the same Resolution the Assembly urged "States to refrain from unilateral action to introduce emission-related levies inconsistent with the current guidance".

In 2004, the ICAO Assembly endorsed in Resolution A35-5, the “the further development of an open emissions trading system for international aviation” and requested that the Council focus on two approaches: “a voluntary trading system that interested Contracting States and international organizations might propose” and provision of “guidance for use by Contracting States, as appropriate, to incorporate emissions from international aviation into Contracting States’ emissions trading schemes consistent with the UNFCCC process.” In both cases, the Council was to “ensure” that the guidelines for an open system “address the structural and legal basis” for aviation’s participation in such a system. The Assembly also urged “Contracting States to refrain from unilateral implementation of greenhouse gas emissions charges prior to the next regular session of the Assembly in 2007” and encouraged Contracting States and the Council to “take into account of the interests of all parties concerned, including potential impacts on the developing world.”

In 2007, the Assembly adopted guidance for applying emissions trading to aviation by States and, in Appendix L of Resolution A-36-22, urged “Contracting States not to implement an emissions trading system on other Contracting States’ aircraft operators except on the basis of mutual agreement between those States.” In the same Appendix L, the Assembly concluded that “existing ICAO guidance is not sufficient at present to implement greenhouse gas emissions charges internationally, although implementation of such charges by mutual agreement of States members of a regional economic integration organization on operators of those States is not precluded” and urged “Contracting States to refrain from unilateral implementation of greenhouse gas emissions charges”. Subsequently, 42 Contracting States did not agree that these conclusions were appropriate and entered a formal reserve on Appendix L.

5) *Regulatory measures / other*

Measure	Definition	Implementing entity	Examples of implementation	Potential relative gains	Estimated costs	Possible timescales	Possible assistance to developing countries	Comments
Airport movement caps/slot management		States; airports; airlines	Australia (Sydney)	Low to High	Low to high	Short	Technical assistance and training	Depends on the structure of the scheme. Potential legal issues depending on how this is implemented.
Enhancing weather forecasting services		States; airlines; private industry	USA: JPDO Weather WG	Low	Medium	Short to Medium RSA: short	Finance & access to technology	
Requiring transparent carbon reporting	Wide publication of routine aviation carbon footprint reports +formal examination of carbon footprints in EIA processes	States; industry	USA: Form 41 reporting	Low to medium	Low	Short	Technical assistance and training	
Conferences workshops		ICAO; multiple stakeholders		Low to medium	Low	Short	Education and training programmes	

4. 对发展中国家的援助

各成员建议了具体的意见，帮助发展中国家在航空气变组制定的全球理想目标的范畴内发挥它们的作用，解决气候变化问题。

来自发展中国家的成员强调了此种措施与《联合国气变框架公约》和《京都议定书》的条款保持一致的必要性，但这不影响在联合国气变框架公约内的任何未来的协议。至于如何把这转变成国际航空中采取的措施，工作组各成员之间存在意见分歧。其他成员强调了非差别待遇的原则，这是《芝加哥公约》和国际民用航空市场运营的核心原则。

总的来说，对发展中国家的任何援助应以一体化的方式与社会和经济发展相协调，同时虑及发展中国家实现可持续的经济增长和消除贫困的正当的优先需要。

对发展中国家的可能的援助选项可以按主题分类为经济措施、技术转让、适当的财务援助、教育与培训、以及对调整的支持。这些包括在与航空有关的领域采取一系列可能的行动。

鉴于本小组的作用是将重点放在措施上，我们在以下列出了工作组建议的具体的想法，应在这些领域考虑对发展中国家的援助，也就是可能的最切合实际和最有用的领域。

- **基于经济/市场的措施：**

- 使用基于经济/市场的措施，包括碳抵消计划、排放权交易计划和排放收费，这些可以通过清洁发展机制（CDM）等为援助获得批准的发展中国家的项目提供资金。

关于排放权交易计划，南非认为（预计会得到其他发展中国家的支持）：

- 当附件1国家考虑排放权交易计划以兑现其根据《联合国气变框架公约》和《京都议定书》做出的承诺时，必须认识到非差别待遇的原则和共同但有区别的责任的原则。
- 此外，考虑到第36届大会决议的附录L（见潜在措施表第4部分——基于经济/市场的措施的注脚），考虑实施排放权交易计划的发达国家应考虑对发展中国家的潜在影响——包括对航空服务的影响和对这些国家处理气候变化的措施的更广泛的资金来源的影响。

- **技术转让**

- 发展和增强发展中国家的内在能力和技术。
- 在切合实际的情况下开发设施，以便在当地实施措施[如改装现有机身（翼片等）和改装现有航空器发动机的能力，提供替代燃油的基础设施]。这可以采取向商业公司施加影响的方式，让它们看到发展中国家的机会。
- 提供支持，以便发展和应用先进的空中交通管理工具，确保有适当的机载设备和对人员进行培训。

- **财务援助：**

- 除了通过《联合国气变框架公约》向发展中国家提供的一般基金以外，应考虑通过国际民航组织“实施目标筹资机制”¹（可以进行修订）为具体的国际航空项目供资，以处理所有形式的技术转让，并实施更高效的系统。在该机制下有适合特定捐助人的各种需要的筹资模式，这些提供了一个框架，为项目的实施进行灵活安排。

- **教育与培训：**

- 应援助发展中国家发展和实施教育与培训方案，包括加强国家院校的能力，交换或借调人员，培训与国际民用航空有关的环境事务方面的地方专家。

5. 实施方法

本部分涉及了各种潜在机制，支持在所有国家采取措施。

考虑的选项包括：

- 通过国际民航组织制定指南和关于措施的辅助资料，在已经完成的工作基础上予以推进，比如第303号通告；
- 鼓励各地区集团之间开展合作，制定协调一致的方法，处理向空中交通管理这样涉及多个国家的问题；
- 鼓励各国建立伙伴关系，共享信息和知识；
- 鼓励所有国家制定和公布行动计划，阐述该国为做出其贡献拟采取的做法；
- 在行动计划中，可以规定将给予优先的拟议的措施、实施的方法、时间和预计的结果；
- 对于发达国家，说明援助发展中国家的方法；
- 对国家的行动计划的实施情况进行监测和报告以及必要时对这些信息进行更新的机制；和
- 其他国家和行业提供援助，国际民航组织可为此提供便利，对采取行动的领域进行评估，并制定行动计划。

6. 评估框架

文字将在航空气变组第三次会议以后拟定，将考虑到目标和监测。

¹ 《全球空中航行计划》2007年第3版（Doc 9750 AN/963号文件）附录G，其中包含A27-18号决议：技术合作活动的供资。

GIACC WORKING GROUP 2 TERMS OF REFERENCE

Task

To provide information on measures and good practice examples of which States could take to address the climate change impact of international civil aviation. The list of measures is not intended to be prescriptive but should provide ICAO Contracting States with information on the possible action which they could take and the potential contribution which they could make to addressing climate change.

Actions

- a) The working group should identify a comprehensive list of key measures which can address international civil aviation's climate change impact. These should cover each of: technology development, improved air traffic management, more efficient operations and market based measures. (Coordination with the Global Aspirational Goals Working Group will be necessary for this task)
- b) As far as practicable the working group should provide clear definitions of different measures, to minimise uncertainties about the relationships and overlaps between different possible actions [and to flag up potential trade-offs].
- c) For each measure the working group should collect examples of implementation to enable States and operators to learn from the experience of others and to facilitate good practice. It should also provide contact details of those who have valuable experience to share.
- d) The group should provide the best information possible on the relative gains in terms of emissions reduction which might be achieved through different measures and the related costs to achieve this taking into account that priority setting has to be done individually by States.
- e) The working group should identify the potential earliest practicable timescales for implementation of different measures so that it is clear whether measures offer the prospects for action in the short, medium or only the longer term.
- f) With respect to the question of how to implement measures described at a), the working group should consider mechanisms to facilitate implementation by States, including the possible role of ICAO in this.
- g) Evaluation framework on all measures indicating the feasibility, practicality, affordability of implementing these measures in order to assist Member States to make informed choices.
- h) The working group should identify measures to assist developing countries in fulfilling their obligations with respect to international civil aviation and climate change.

Deliverable

For GIACC/3 the working group should produce a report with the list of measures including definitions and with initial examples of implementation. Examples should be completed and information should be provided on the possible emissions reductions which can be achieved by each of these measures.

— END —