



ICAO

ENVIRONMENT



Financing Sainarayan A Environment Branch

Assistance and Financing for International
Aviation Emissions Reductions



- Assembly Resolution A38-18 required ICAO Council

Facilitate access to existing and new **financial** resources, technology transfer, and capacity building for developing countries

Consolidate and build on the partnership with other International Organizations to meet the assistance needs of ICAO's member States

Initiation of specific measures to assist developing States

Synergies and constructive engagement among ICAO, Member States, stakeholders and other international organizations

Assistance to Member States through dissemination on best practices and the provision of guidance

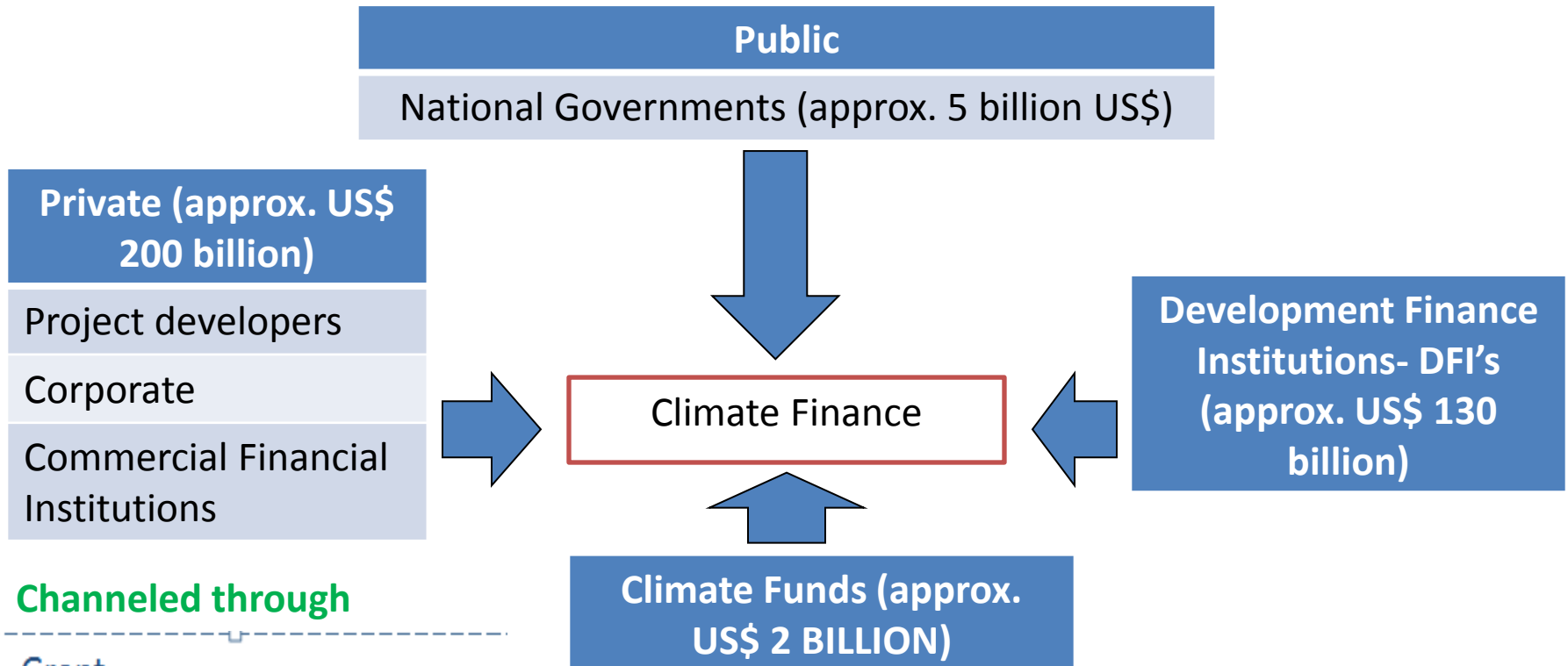


- Sources and Instruments
- Challenges and Opportunities
- Financing (Some Examples)
- ICAO's key role
- Adaptation Financing





2012 Annual Global Climate Finance for Mitigation in all Sectors USD \$ 340 billion (Source CPI)



Channeled through

- Grant
- Low Cost debt
- Market rate debt (Loans, Bonds)
- Equity, Venture Capital.
- Infrastructure Funds



**MULTILATERAL DEVELOPMENT BANKS**

AfDB	African Development Bank
AsDB	Asian Development Bank
IADB	Inter-American Development Bank
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
IFC	International Finance Corporation
WB	World Bank (IDA and IBRD)
NIB	Nordic Investment Bank

NATIONAL & SUB-REGIONAL DEVELOPMENT BANKS

BANOBRAS	Banco Nacional de Obras y Servicios Publicos SNC
BNDES	Brazilian Development Bank
CAF	Development Bank of Latin America
KfW	KfW Mittelstandsbank; KfW Privatkundenbank; KfW Kommunalbank; KfW IpeX-Bank
CDB	China Development Bank
BANCOLDEX	Banco de Comercio Exterior de Colombia S.A.
BCIE/CABEI	Central American Bank for Economic Integration
BE	Banco del Estado de Chile
BSTDB	Black Sea Trade and Development Bank of Greece
CDG	Caisse de Dépôt et de Gestion, Morocco
Exim	Indonesia Exim Bank
HBOR	Croatian Bank for Reconstruction and Development
KoFC	Korea Finance Corporation
NAFIN	Nacional Financiera
SIDBI	Small Industries Development Bank of India
TSKB	Industrial Development Bank of Turkey

BILATERAL FINANCE INSTITUTIONS

AFD	- Agence Française de Développement - Proparco
BIO	Belgian Investment Company for Developing Countries
CDC	CDC Group plc - UK
COFIDES	Compañía Española de Financiación del Desarrollo
DEG	KfW Deutsche Investitions- und Entwicklungsgesellschaft
FINNFUND	Finnish Fund for Industrial Cooperation Ltd
FMO	Netherlands Development Finance Company
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
KfW	KfW Entwicklungsbank
NADB	North American Development Bank
Norfund	Norwegian Investment Fund for Developing Countries
OeEB	The Development Bank of Austria
OPIC	Overseas Private Investment Corporation
SIFEM / OBVIAM	Swiss Investment Fund for Emerging Markets
SIMEST	Società Italiana per le Imprese all'Estero



CLIMATE FUNDS

Adaptation Fund (AF)

Clean Technology Fund (CTF)

Congo Basin Forest Fund (CBFF)

Forest Carbon Partnership - Readiness Fund (FCPF-RF)

Forest Investment Program (FIP)

GEF Trust Fund (GEF 5)



Global Climate Change Alliance (GCCA)

Global Energy Efficiency and Renewable Energy Fund

Least Developed Countries Fund (LDCF)



■ Challenge

- International Aviation has no dedicated financial mechanism related to climate change

2012 Annual Global Climate Finance for Mitigation in all Sectors USD \$ 340 billion

■ Opportunities

- Financial support can be originated from public, private and public-private sectors.

States can in close coordination with ICAO and using ICAO assistance tap the different sources of financing using the Action Plan platform.

States can independently using Action Plan guidance and standard taxonomies approach DFI's and other sources for financing.



- Have a mitigation Project
- Use the Action Plan Platform and guidance to Request for Assistance
- Coordinate with ICAO for assistance and facilitation
- Independently or using ICAO assistance tap Sources of Mitigation Finance to secure financing.





Financing the Development of Aviation Biofuels in Latin America and the Caribbean

- The Inter-American Development Bank (IDB): leading source of developing financing for LAC

Contribute in a relevant way to sustainable social and economic development of its members

Reduce poverty and create jobs

Provide longer-term environmental benefits and mitigate climate change

Promote sustainable rural development

Optimize the use of human and natural resources of its Member Countries

Stimulate public-private partnerships, among others

Ensure that biofuel production is socially and environmentally sustainable



Argentina, Brazil, Mexico, Colombia, Chile, El Salvador, Honduras, Guatemala, Dominican Republic, Haiti, Guyana, Suriname, and Paraguay



• IDB Aviation Biofuels Initiative for LAC

- Aviation biofuel benefits
- Requests from the region
- LAC's leading role on ethanol and biodiesel production
- Commercial Aviation Alternative Fuels Initiative: Development promotion of greener aviation fuels

Motivation Factors



- Embraer
- Boeing
- GOL
- Azul
- Amyris
- ASA of Mexico
- GE
- ICAO
- The World Economic Forum
- Commercial Aviation Alternative Fuels

Stakeholders



Replacing as much as 50% of jet fuel worldwide by alternative sources by 2050



Work with partner countries to integrate climate change into their domestic policies in a way that mirrors the country's specific circumstances

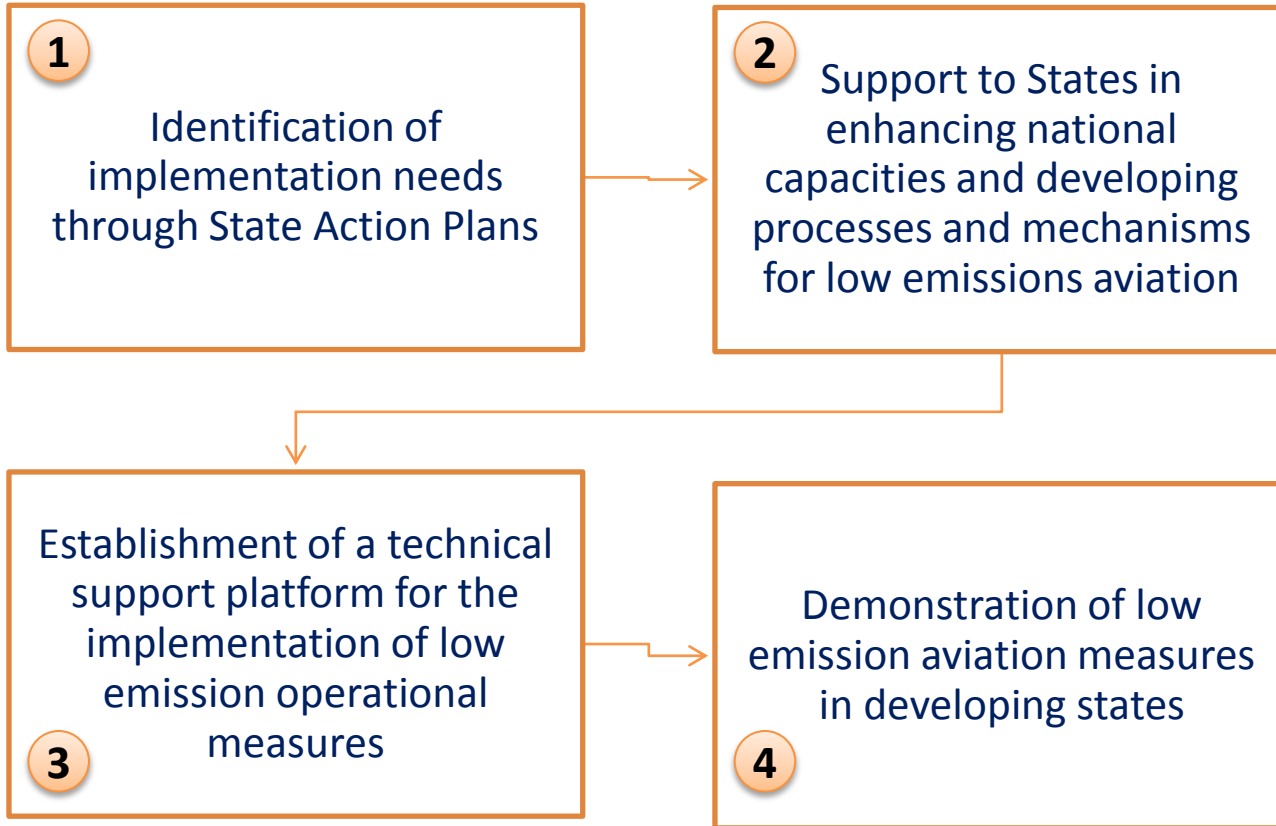
■ EU Priorities for mitigation assistance related to International Aviation

- Supporting the preparation or further elaboration of State's action plans
- Assisting the improvement of CO₂ environmental system tools and processes for compiling national inventories in the aviation sector
- Financing country-specific pilot measures to reduce aviation fuel consumption and to improve airspace usage



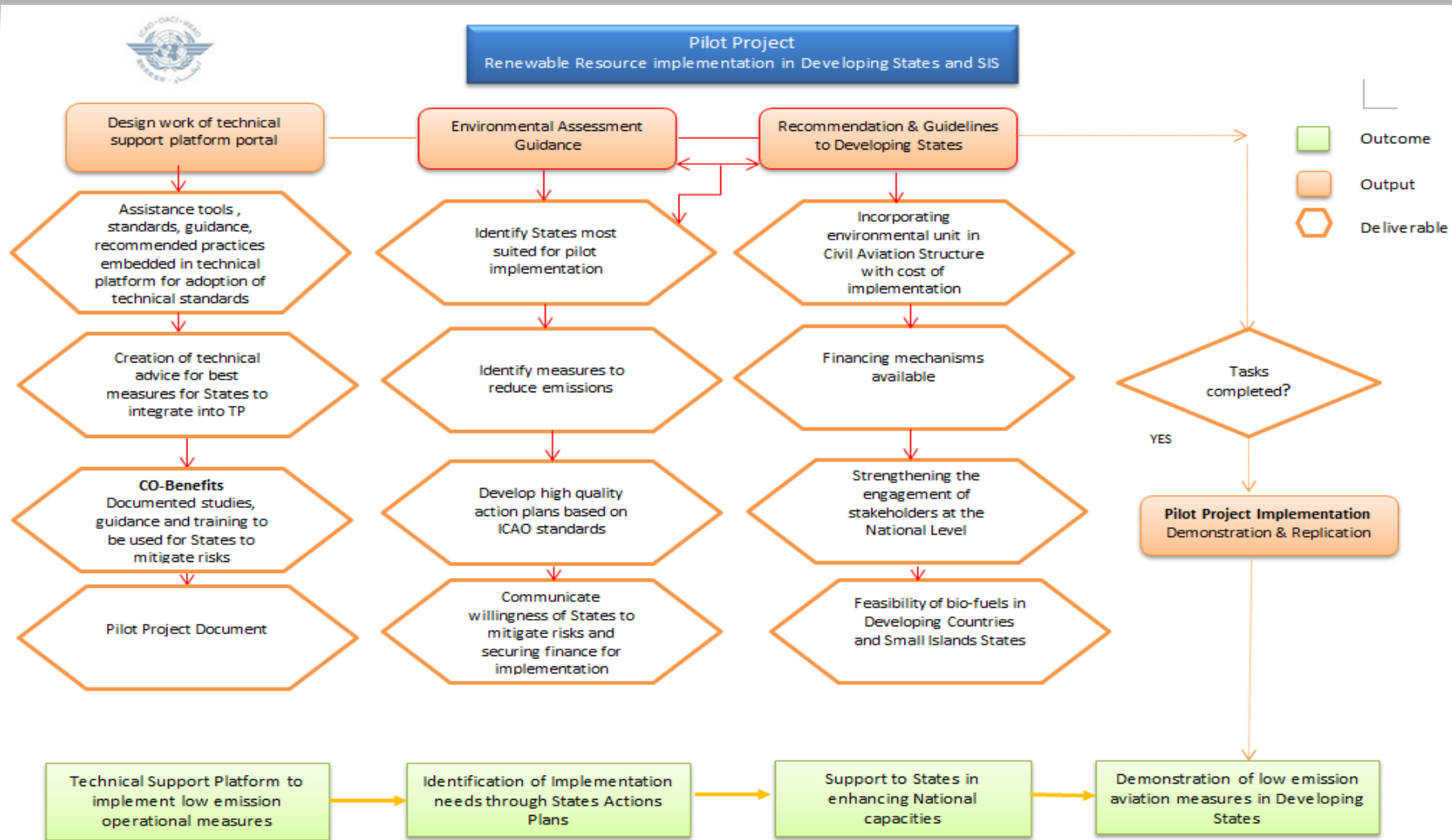


- Salient features of Project



Note - Salient features of the project are subject to change as the project evolves and continues to develop.

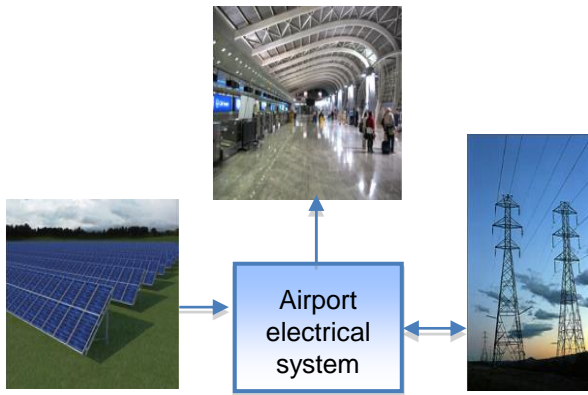




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- Emission reduction measure example



- CO2 emission reduction of around 700,000 Kg / year
- Reduce in lifecycle of project 17,500 metric tons
- Pay back 7-8 years
- Convenience of ensuring a fixed power tariff to the airport utility

FACTORS TO CONSIDER FOR SOLAR PANEL PROJECT IMPLEMENTATION IN AIRPORTS	
PARAMETERS	Max Range
Area	1 acre
Module Tilt	30 degrees
Number of 60 cell solar panels	1,560
Panel Wattage (W)	255
System Size DC (Kw)	398
PRODUCTION NUMBERS	
Annual hours of energy generation	2,000
Energy Generated kWh/year	795,600
ESTIMATED COSTS	
Ground Mount System (\$/W)	2.80
Turnkey Cost (\$/W)	\$1.1 million
Operations & Maintenance (\$/year)	\$5,000
REVENUE POTENTIAL	
Avoided Cost of Solar (\$/kWh)	\$0.20
Annual Potential Savings	\$159,120
LYFECYCLES	
Years of useful life	25

Note - The numbers here are subject to change depending on the State where the Implementation occurs. The numbers are for broad illustrative purposes only.





ICAO-EU: Specific Objectives

EUR 6.5 million financing



Increased capacity of the national civil aviation authorities to develop their action plan to reduce CO2 emissions from international aviation in order to account and manage CO2 from international civil aviation operations



Efficient emission reduction measures are identified and assessed



Aviation emissions are reduced after the implementation of measures, including operational measures, such as improved ATM techniques





AREA OF ACTIVITY 1

Capacity building for the development of action and their inclusion in ICAO State action plans

Country specific ICAO State action plans in at least 5 target States (Request for assistance and the measures clearly defined)

RESULT 1

At least 2 members of staff in national aviation authorities per States trained to develop action plans

RESULT 2





AREA OF ACTIVITY 2

Setting up aviation environmental systems and creating national emissions inventories for aviation

Environmental tools and systems developed and introduced in at least four countries

RESULT 3

At least 2 members from national authorities, gain expertise to work with environmental tools and systems and have the skills to ensure continuity of the project

RESULT 4

A CO2 report for international aviation emissions using the action plans template is developed and submitted to ICAO per country

RESULT 5

States' report to ICAO for UNFCCC inventory of GHC

RESULT 6





AREA OF ACTIVITY 3

Piloting the implementation of measures to reduce fuel consumption through environmental measures including operational measures

At least 4 feasibility studies on proposed pilot measures contained in the action plans are developed

RESULT 7

Measures to improve environmental benefits and reduce aviation fuel consumption including operational measures, such as Air Traffic Management, that directly benefit at least 4 target countries, have been selected and implemented

RESULT 8



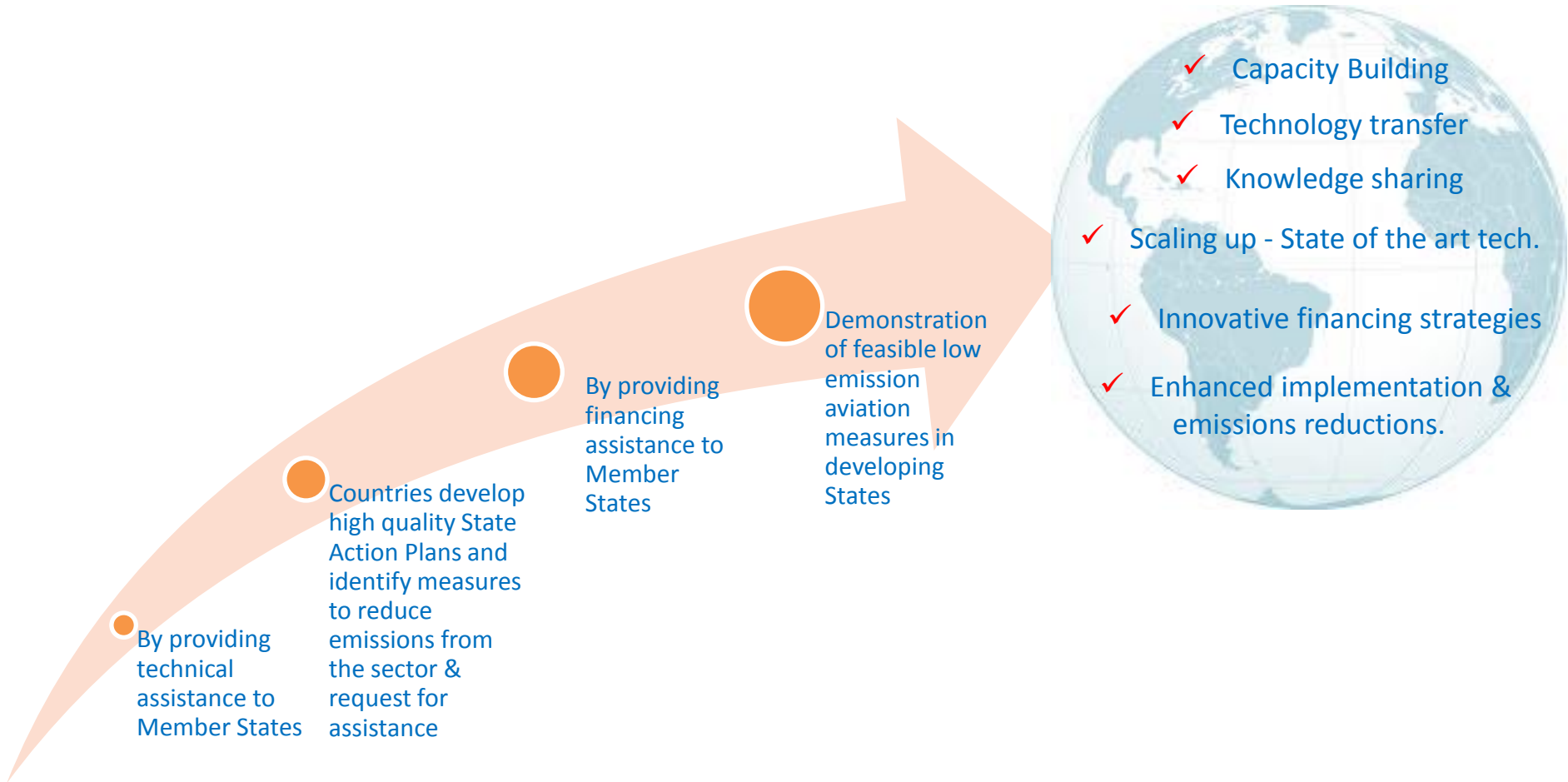


ICAO'S Key Role





Replication



Adaption Measures:
 Those activities undertaken by stakeholders to manage the consequences of climate change.

Fund	Purpose	Administered by
Least Developed Countries Fund (LDCF)	Support the preparation and implementation of NAPAs (National Adaptation Program of Actions)	Global Environment Facility (GEF)
Adaptation Fund (AF)	Support long term adaptation measures to impacts of climate change	Global Environment Facility (GEF)
Global Climate Change Alliance (GCCA)	Bilateral initiative of the European Union to support most vulnerable countries to adapt to the effects of climate change	European Commission (EC)
Green Climate Fund (GCF)	Mechanism to transfer money from the developed to developing countries to assist them in their adaptation and mitigation measures	UNFCCC

2012 Adaptation Financing was USD \$20-24 billion as part of the total USD \$ 359 billion for Annual Global Climate Finance





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QUESTIONS ?

Thank you!

