

# **IMPLEMENTING FRAMEWORK CONTRACT**

**EASA.2016.FC12**

## **RSOO FEASIBILITY STUDY**

### **FEASIBILITY STUDY EXAMINING THE CASE FOR COSCAP-SA'S DEVELOPMENT INTO A REGIONAL SAFETY OVERSIGHT ORGANISATION (RSOO)**

**REPORT FOR THE BENEFICIARIES**

## EXECUTIVE SUMMARY

The visits to States by the Feasibility Study team, while limited in duration, proved an effective data collection and discussion mechanism. The pre-questionnaire provided to CAAs was an early chance to consider the major issues of interest to the Study team. Input from Ministries was very limited.

The majority of States visited believed that there would be value in Level 2 assistance from a regional safety organisation, but also wished the important Level 1 activities to be continued.

The existing COSCAP-SA has struggled over recent years to provide sufficient Level 1 activities to all SA States and has not been able to provide Level 2 activities in a manner acceptable to ICAO.

The most crucial activities for a future regional safety oversight organisation are to provide Level 2 activities as required and to continue the benefits of harmonisation presently undertaken by SARI.

It is feasible to transform COSCAP-SA into a higher level regional safety oversight organisation providing Member States with Level 1 and selected Level 2 outcomes and the majority of SA States agree to this need.

There are various options for both the amount of sustainable support which can be provided to States and the legal and managerial structure of the organisation to provide this support.

The various meetings undertaken between the Study team, Directors General of Civil Aviation (or representatives), ICAO and EASA at the completion of the Research Phase of the Study in September, were an effective exchange of preliminary results from the team and views from others.

Each of the Scenarios has pros and cons and only the first (Scenario A) can be implemented with no additional costs to States. The advantages and cost benefits of each Scenario increase in proportion to the costs in implementing the Scenarios. Additionally, some Scenarios carry a higher degree of risk or address less of the identified issues.

The adoption of COSCAP-SA Phase V as it is presently envisaged will NOT provide the Level 2 support required by many CAAs.

The financial cost in adopting any of the B or C Scenarios can be readily covered by the adoption of a minimal passenger service charge while providing a substantial cost/benefit ratio to the State.

Scenario C is the only solution which will meet all of the requirements of CAAs and can be assessed by ICAO GASOS as an organisation capable of providing Level 2 support.

The Final Report provides details on the process of the Feasibility Study and the options, described as Scenarios, which are available for Directors General of Civil Aviation to consider.

The South Asia Region has a vital need to address the aviation safety oversight deficiencies evident in the ICAO USOAP audits carried out. Existing regional co-operative efforts have not fully resolved these identified deficiencies. With political commitment and legal resolve, circumstances are favourable to establish a viable Regional Safety Oversight Organization for South Asia.

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Annex B: The Banjul Accord Group Aviation Safety Oversight Organization (BAGASOO)  
Agreement

Annex C: Extract from the GASOS Concept of Operations Paper

## LIST OF ACRONYMS AND ABBREVIATIONS

AA	Audit Areas
AAI	Airport Authority of India
AARG	Average Annual Rate of Growth
ACSA	Central American Organisation for Aviation Safety
AGA	Aerodromes, Air routes and Ground Aids
ADB	Asian Development Bank
AIG	Aircraft accident and incident investigation
AIM	Aeronautical Information Manual
AIR	Airworthiness of aircraft
AIS	Aeronautical Information Services
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
AOC	Air Operator's Certificate
APAC	Asia Pacific
ASK	Available Seat Kilometre
ATM	Air Traffic Management
ATCO	Air Traffic Controller
ATO	Approved Training Organization
ATS	Air Traffic Services
AVMED	Aviation Medicine
AW	Airworthiness
AWP	Annual Work Programme
BAGASOO	Banjul Accord Group Aviation Safety Oversight Organization
BCAA	Bhutan Civil Aviation Authority
CAA	Civil Aviation Authority
CAAB	Civil Aviation Authority of Bangladesh
CAAN	Civil Aviation Authority of Nepal
CAAP	Civil Aviation Authority of Pakistan
CAASL	Civil Aviation Authority of Sri Lanka
CAGR	Compounded Annual Growth Rate
CAP	Corrective Action Plan
CAPA	Centre for Asia/Pacific Aviation
CAPEX	Capital Expenditure
CAR	Civil Aviation Regulation
CASSOA	Civil Aviation Safety and Security Oversight Organization
CAST	Commercial Aviation Safety Team
CBA	Cost Benefit Analysis
CBM	Collaborative Decision Making
CCs	Compliance Checklists
CE	Critical Element (State Safety Oversight System) – 8
CMA	Continuous Monitoring Approach
CNS	Communication, Navigation, Surveillance
COCESNA	Centro Americaane de Servicios de Navigacion Aerea

CONOPS	Concept of Operations
COSCAP-SA	Cooperative Development of Operational Safety and Continuing Airworthiness Programme- South Asia
COSCAP-LAM	Cooperative Development of Operational Safety and Continuing Airworthiness Programme – Latin America
CTA	Chief Technical Advisor
DGAC	Directorate Generale de L’Avation Civile
DGCA	Director General of Civil Aviation
EASA	European Aviation Safety Agency
ECCAIRS	European Coordination Centre for Accident and Incident Reporting System
EI	Effective Implementation (of a Critical Element and safety oversight capability of a State)
EU	European Union
EU-SA APP	European Union South Asia Aviation Partnership Programme
FAA	Federal Aviation Administration
FCL	Flight Crew Licensing
GASOS	Global Aviation Safety Oversight System
GDP	Gross Domestic Product
IASA	FAA International Aviation Safety Assessment
IATA	international Air Transport Association
ICAO	International Civil Aviation Organization
ICT	Information and Communication Technology
IFFAS	International Financial Facility for Aviation Safety
IFAPM	Institutional Framework & Procedures Manual
IOSA	IATA Operational Safety Audit Programme
iSTARS	ICAO Integrated Safety Trend Analysis and Reporting System
IUSOAP	ICAO Universal Safety Oversight Audit Programme
ICVM	ICAO Coordinated Validation Mission
JAA	Joint Aviation Authorities
LEG	Legal - primary aviation legislation and specific operating regulations
LEI	Level of Effective Implementation
MCAA	Maldives Civil Aviation Authority
MET	Meteorology
MCTC	Ministry of Culture, Tourism and Civil Aviation
MMEL/MEL	Maintenance management Exposition List/Minimum Equipment List
MOU	Memorandum of Understanding
MOC	Memorandum of Cooperation
MOT	Ministry of Transport

MRO	Maintenance Repair and Overhaul
MS	Member State
OJT	On-the-job training
OPAS	ICAO Operational Assistance inspectors
OPS	Aircraft operations
ORG	Civil Aviation Organization
PANS	Procedures for Air Navigation Services
PBN	Performance Based Navigation
PC	Programme Coordinator
PEL	Personnel licensing and training
PQ	Protocol Questions
RASA	Regional Air Safety Agreement
RE	Regional Experts employed by COSCAP-SA
RE (HB)	Regional Experts Home Based
RPK	Revenue Passenger Kilometre
RSOO	Regional Safety Oversight Organization
SA	South Asia
SAAP	Special Autocorrelation Analysis programme
SAARC	South Asia Association for Regional Cooperation
SA-ASOO	South Asia Aviation Safety Oversight Organization
SACBM	South Asia Capacity Building Matrix
SAFA	European Safety Audit of Foreign Aircraft
SAR	Search and Rescue
SARAST	South Asia Regional Aviation Safety Team
SARPs	Standards and Recommended Practices
SARI	South Asia Regional Initiative
SC	Steering Committee
SCM	Steering Committee Meeting
SMS	Safety Management System
SOO	Safety Oversight Organization
SRVSOP	Sistema Regional de Cooperación para la Vigilancia de la Seguridad Operacional
SSC	Significant Safety Concern
SSP	State Safety Plan
STE	Short Term Expert
TCB	Technical Cooperation Bureau (of ICAO)
TE	Technical Expert
TOR	Terms of Reference
USOAP	Universal Safety Oversight Audit Programme
WB	World Bank

## **1. BACKGROUND, OBJECTIVES AND SCOPE OF THE STUDY**

### **1.1 Background**

Traffic forecasts for South Asia are the highest in global aviation, and are expected to grow at 8.6 percent per year over the next 20 years. Nevertheless, many of the SA States already find it challenging to cope with the present aviation environment and to meet ICAO requirements in full. Rising traffic levels and the increasing complexity of aviation in the face of limited resources imply the need for Governmental organizations to explore new paradigms for its safety oversight systems. The opportunity for addressing these issues cooperatively and regionally is encouraged by EASA and ICAO and generally welcomed by the SA States.

The necessity of addressing safety oversight cooperatively and regionally was again reinforced in 2016 during the 39th Session of the ICAO Assembly, which in its Resolution A39-14:

- “Urges Member States to develop and further strengthen regional and sub-regional cooperation in order to promote the highest degree of aviation safety”; and
- “Encourages Member States to foster the creation of regional or sub-regional partnerships to collaborate in the development of solutions to common problems to build State safety oversight capability, and to participate in, or provide tangible support for, the strengthening and furtherance of sub-regional and regional aviation safety and security oversight bodies, including RSOOs.”

Following the 39th ICAO Assembly, ICAO and EASA jointly organised the RSOO Forum in Swaziland from 22 to 24 March 2017, which endorsed the ICAO Global Strategy and Action Plan for the improvement of regional safety oversight organizations (RSOOs).

At the First Asia Pacific Ministerial Conference on Civil Aviation which took place in Beijing, China on 31 January and 1 February 2018, Ministers signed a Declaration, inter alia acknowledging that the existing regional relationships and partnerships are evolving with meaningful technical cooperation and assistance programmes (e.g. Cooperative Development of Operational Safety and Continuing Airworthiness Programmes (COSCAPs)) etc. In addition, it was recognized that there is a compelling need for stronger regional cooperation, partnership and engagement to continuously improve aviation safety. A copy of this Declaration is included as Annex A.

### **1.2 Objectives**

In its Safety Oversight Manual Part B (Doc 9734), ICAO specifies that a Feasibility Study should be carried out prior to the establishment of a RSOO, in order to assess the nature of the aviation activity in the prospective Member States as well as their safety oversight capabilities. The information gathered through such a Study normally serves as a basis for States to decide on the form, type or level of RSOO that would deliver the best value for the region.

Following the ICAO/EASA RSOO Forum in 2017, ICAO initiated several actions, to include the evaluation of existing RSOOs and COSCAPs. An evaluation of RSOOs in general has been carried out by ICAO in 2016/7, using a questionnaire, for the purpose of updating information on the challenges facing their improvement. This questionnaire was responded to by COSCAP-SA. This evaluation

recognises COSCAP-SA as a Level 1 RSOO, namely one that offers advisory and coordinating functions. COSCAP-SA is about to transition to its 5th Programme phase.

A review of various Discussion Papers and Minutes of COSCAP-SA Steering Committee meetings makes it clear that the extension of COSCAP capabilities to include Level 2 activities has long been a desire of many of the DGs. In particular, the need for these Level 2 activities to be recognised by ICAO as being undertaken on behalf of Member States, is consistently identified.

In line with the objectives of the EU-SA APP, EASA wishes to work closely with ICAO and the COSCAP-SA States to assist in investigating whether and how COSCAP-SA could evolve in form, type or level, as and when the States are so willing, and in line with ICAO recommendations.

In consenting to an independent Feasibility Study, the SA States wish to generally examine the feasibility of enhancing regional cooperation and, in particular, the establishment of an RSOO that could also provide operational Level 2 assistance tasks and functions (to be otherwise referred to as a Level 2 RSOO for the sake of brevity).

Thus, the purpose of this specific Feasibility Study, funded by the EU and executed by EASA through the EU-SA APP Project, is to examine the feasibility of COSCAP-SA's development into a Level 2 RSOO.

### **1.3 Scope and Terms of Reference**

The team of experts contracted for this Study are to support EASA, COSCAP-SA and the SA States by developing the Feasibility Study which includes the collection of data and information, research and analysis to determine if there is a potential for an effective enhanced regional mechanism for aviation safety oversight in South Asia. In particular, it includes the following:

#### **1.3.1 Research Phase**

In coordination with SA States as represented by the COSCAP-SA SC, the Study is to:

- Examine the existing national and COSCAP-SA aviation safety oversight tasks, functions and systems in terms of ICAO compliance and effectiveness and identify the individual needs of States in this regard.
- Determine the human and financial resources of the individual States and the region as a whole, both in terms of actual capacity today and the capacity required to cope with the forecast traffic increase in aviation activity over the next ten years.
- Conduct a Cost Benefit Analysis of COSCAP-SA, over the past two decades.
- Review the current regional and national legal instruments that may facilitate a regional organisation, as necessary under the full jurisdiction of the national DGs. Consider the option of initiation with a smaller group of States with the opportunity for others to join at a later date.

The collection of data to perform these tasks should be undertaken in cooperation with ICAO (using tools such as iStars and the recent RSOO evaluation), IATA and other publicly available sources as well as through direct contact with, and visits to, those SA States taking part in the Study.

The Research Phase is to conclude with an initial Feasibility Study report aggregating all results, which shall be presented to all COSCAP-SA States during an interim review meeting. This meeting will serve to verify and endorse the initial report.

### 1.3.2 Analysis Phase

Drawing on the information gathered during the Research Phase, the Study is to:

- Outline Scenarios for further development by the national authorities.
- Provide recommendations for the consideration of the States on how to overcome identified weaknesses, either nationally or collectively.
- Develop and outline viable Scenarios (if any) for further development of COSCAP-SA into another form, type or level of RSOO, taking into account the States' collective and individual economic, political and technical environment.
- Produce a clear business case including a cost-benefit analysis surrounding each Scenario, taking into account the experience of other RSOOs worldwide; ensuring that possible national contributions may not exceed current contributions to the COSCAP-SA and SARI, but suggesting other sustainable funding mechanisms that may be viable, perhaps with an even reduced financial burden on those States with the lowest aviation activity.
- Describe the impact of each Scenario for the individual States, including potential cost savings.
- Produce a risk analysis for each Scenario.
- For each viable Scenario identified (if any), include a proposal for a possible RSOO governance and management structure, objectives and tasks, delegation mechanisms by Member States, funding and required resources in terms of budget and manpower, and a realistic roadmap outlining a possible transition.

The work undertaken during both phases and the resulting recommendations are to be compiled in a final Feasibility Study report.

Other considerations may be requested to support the objective of this Study. Following feedback from EASA and the SA States, a revised version of the above document is to be produced.

Additional tasks may be requested on an as-needed basis to support the development of the Feasibility Study for the SA region.



## **2. FACTORS TO BE CONSIDERED DURING THE DETERMINATION OF VIABLE SCENARIOS FOR THE FURTHER DEVELOPMENT OF A SA RSOO**

### **2.1 Background**

Many States have not established effective aviation safety oversight regimes and are not fully complying with a number of safety related SARPs, which creates the risk of unsafe conditions in the aviation sector. A major cause of ineffective safety oversight by States is a lack of high prioritisation by Governments leading to insufficient funding, human resources and technical expertise. This characteristic is further exacerbated in those States with only a small aviation industry.

The development of any sustainable aviation system depends on adequate regulatory oversight, which complies with the principles of the Chicago Convention and the SARPs in its Annexes. The Chicago Convention provides in Article 1 that each Contracting State has complete and exclusive sovereignty over the airspace above its territory. With this right comes a set of obligations that aim at ensuring safe aviation operations. These include the establishment and maintenance of uniform regulations (Article 12, Rules of the Air), the issuance of airworthiness certificates (Article 31) and licences (Article 32), and the adoption of international standards and procedures (Article 37). Given these rights and obligations, a Contracting State to the Chicago Convention needs to decide how to comply in the best and most efficient way.

According to ICAO USOAP results, many States' compliance with ICAO SARPs is below the global average. In the struggle to comply with international aviation standards, while lacking the required resources and technical capacity, grouping efforts into regional entities is one feasible option for States. The trend of regionalization in oversight of air transport, manifested through the formation of RSOOs, is designed to assist States in meeting these obligations through the pooling of resources, the delegation of oversight functions, and the harmonization of regulations.

Pooling resources in a regional organization has proven to be a feasible way forward. It implies that a State clearly decided to either assign certain responsibilities to a regional entity (e.g. issuing airworthiness certificates) or to use the regional entity and its pooled resources as a service provider. As a service provider, the regional body carries out some of the States' own regulatory oversight tasks (e.g. providing a flight inspector to conduct flight crew checks) and reports the outcome; in which case, the responsibility for the actual certification remains with the State. Alternatively, as in the issuance of an airworthiness certificate, an RSOO could be assigned the authority for certain oversight functions and certifies the result (Level 3).

RSOOs can vary in terms of structure, level of integration, and delegated authority. However they share a fundamentally common goal: in helping to ensure that members operate in accordance with ICAO SARPs. RSOOs can therefore assist Member States in a range of ways, to include the provision of expert advisory and consultative services on safety oversight and of technical assistance and the execution of oversight services. The conduct of oversight functions by an RSOO is provided only at the request and with the consent of the States, as it requires a formal delegation of functions and authority from the States to the organization. In such a situation, the RSOO acts as an "agent" of the Member States, which are the "principals". As principal, the State always retains the ultimate responsibility for meeting its oversight obligations.

There is further an understanding that the creation of RSOOs cannot be achieved using a 'one-size-fits-all' approach, particularly given that aviation markets differ greatly in size and complexity. It requires careful planning and execution, including a consideration of a number of technical, financial, and legal factors—for example, the roles and functions of national oversight systems, sources of funding, and political will.

#### 2.1.1 Organizational/legal challenges

Member States of an existing or future RSOO must determine and agree on the legislative and regulatory framework, which will govern aviation oversight assistance regionally. This works most effectively when aviation regulation and practices are standardised or harmonized, which in some cases could involve a lengthy legislative process.

The result of such an analysis, where the lack of safety oversight is scrutinized against the Contracting States' technical and human capacity, will be the basis for determining how much authority a State will delegate to an RSOO. Another fundamental element for the successful establishment of an RSOO is the need for a common regulatory structure among Member States of an RSOO.

For the purposes of efficiency and effectiveness of the RSOO, a high degree of autonomy in the recruitment and management of the RSOO will be necessary. However, the full role and coverage and annual work plan and direction of the RSOO will need to be reviewed and agreed to by a managing body, similar to the SC of the COSCAP. This body will comprise all the DGs of the Member States (or their designates). It may also include other invited external organisations. The SC or equivalent (as per an Agreement to be signed by the Member States) is expected to meet at least twice a year (and more if necessary) to ensure proper oversight.

It is important for the Member States to agree to various areas/disciplines to be addressed by the RSOO; and affirm that the rules pertaining to those areas are harmonized in the region.

#### 2.1.2 Financing

The greatest challenge concerning the establishment of RSOOs, as several recent examples such as the Banjul Accord Group Aviation Safety Oversight Organization (the BAGASOO), the East African Community Civil Aviation Safety and Security Oversight Agency (CASSOA) and the Pacific Aviation Safety Office (PASO) have shown, is assuring adequate and sustainable financing. On-demand payments for services needed and financial contributions through annual subscriptions have proven to be difficult models, as Governments of Member States of such organisations change and new priorities emerge that may advocate other relationships and dependencies.

From first principles the financial contribution of Member States will depend on the following aspects:

- Ability to pay/national GDP.
- Political will to address the issues.
- Need and extent of the deficiencies that require resolution.
- Based on the current contributions being made to COSCAP-SA.

It is apparent that some of the deficiencies stem from the States' financial issues. When all the contributions are summed up, the effect is more substantial. Based on the current contribution of

States to COSCAP-SA it is conceivable that they would be inadequate to provide a substantial increase in assistance to State CAAs.

Willing donors have played an important role globally and in South Asia in supporting the early development of regional safety initiatives and the expectation is that this will continue, notably when the funded activities are designed to establish self-sustaining programmes. The global experience however is that RSOOs need to have adequate and independent sources of finance without reliance on donors.

A multiple financing mechanism may be necessary to ensure sustainability. It is possible, without excessive financial burden on the individual States or the aviation industry of the States; to meet the necessary budgetary requirements through a combination of user fees and charges and from donor funding.

### 3. OVERVIEW OF GLOBAL RSOO EXPERIENCE

#### 3.1 Defining the RSOO

ICAO uses the term “RSOO”, in a general sense, to cover a *“number of legal forms and institutional structures that range from highly formalized international Governmental organizations .... to less institutionalized projects established under the ICAO Cooperative Development of Operational Safety and Continuing Airworthiness Programme (COSCAP)”*<sup>1</sup>. This generic definition therefore leaves it up to each regional group of States aiming to establish an RSOO, to very much decide on the legal form and institutional structures that best fits the needs and the characteristics of their region. This all-inclusive definition also recognizes the fact that several of the more institutionalized RSOOs evolved or transitioned from COSCAPs.

##### 3.1.1 ICAO COSCAPs

COSCAP-SA, which commenced in 1998, was the first of a total of ten COSCAPs that were established by ICAO in Africa, Asia, Europe, Latin America and the Middle East. The COSCAPs have enabled States, in any one region, to pool their resources for the purpose of enhancing their safety oversight capabilities. Although initially created to facilitate implementation in the areas of aircraft airworthiness, personnel licensing and aircraft operations, several of the COSCAPs, including COSCAP-SA, extended their mandates to include aerodromes and air navigation services.

The COSCAPs have made tangible contributions in enhancing the safety oversight capabilities of their Member States, particularly in the development of harmonized sets of regulations, the drafting of guidance material and inspector handbooks and in raising the capabilities of national inspectors and technical staff. Their Steering Committee meetings also offered an opportunity for States to share problems and, with the support of donor States and organizations, to seek common solutions. Although ICAO manages the COSCAPs through its Technical Cooperation Bureau, Member States very much determine their respective COSCAP’s technical programme.

The COSCAPs however also have their limitations. They remain projects and programmes of ICAO, do not have international legal personality and for that reason, cannot, in their own right, arrange for their own funding or enter into agreements with other entities. In addition, being part and parcel of ICAO, they cannot be empowered by their Member States to undertake direct oversight of industry entities. COSCAP technical experts and inspectors have not also, at least up to the present time, enjoyed the status of ICAO Operational Assistance (OPAS) inspectors, and so any attempt to use them for the direct conduct of certification and surveillance inspections will entail a conflict of interest.

##### 3.1.2 Transitioning to institutionalized RSOOs

It is for these reasons that ICAO has, in general, supports the transition of COSCAPs to more institutionalized RSOOs that are established on the basis of interGovernmental agreements or treaties. ICAO firmly believes that the more institutionalized RSOO *“more expressly commits its Member State to the organization, better enables the delegation of tasks and functions .... and better provides for sustainability”*<sup>2</sup>.

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<sup>1</sup> (Doc 9734, Part B) Safety Oversight Manual, Part B, The Establishment and Management of a Regional Safety Oversight Organization, Foreword.

<sup>2</sup> Ibid.

Altogether five COSCAPs, including COSCAP-SA, have either already transitioned or are currently taking steps to transition to a more formal, institutionalized RSOO. Two other Asian COSCAPs (COSCAP-NA and COSCAP-SEA) have chosen, at least for the moment, to remain under ICAO management as COSCAPs. This can also be said for COSCAP-LAM which, although it transitioned to the Regional Cooperation System on Safety Oversight in Latin America (SRVSOP), is managed by ICAO and is fully integrated with the ICAO Regional Office for Latin America.

The five COSCAPs that are either already institutionalized or in the process of institutionalizing join seven other fully institutionalized RSOOs. See Table 3.1 below for the full list of current RSOOs. Some of these RSOOs, such as BAGASOO and PASO, are international organizations in their own right, whilst other RSOOs, such as CASSOA and EASA, are agencies or institutions that have been created within the institutional framework of a regional economic integration organization (REIO) or, as in the case of one RSOO – ACSA - an already existing technical organization.

As in the case of the COSCAPs, the institutionalized RSOOs have also contributed towards the strengthening of safety oversight in their respective regions. They have likewise contributed to the development of harmonized or common aviation requirements, inspector manuals and other guidance material and to the training of inspectors. They have also participated in ICAO programmes, including the Regional Aviation Safety Groups (RASGs) and assisted their Member States to prepare for the ICAO audits and other monitoring activities. In a limited number of cases, as with the SRVSOP, which provides coordinating and advisory services, or a fully institutionalized RSOO, such as EASA, which exercises certification and approval competences in certain areas, the RSOO has even met with the full expectations of their Member States.

TABLE 3.1 LIST OF REGIONAL SAFETY OVERSIGHT ORGANIZATIONS (RSOOS)

RSOO	First Year of Operation	RSOO	First Year of Operation
Agencia Centroamericana para la Seguridad Aeronáutica (ACSA)	2006	Cooperative Development of Operational Safety and Continuing Airworthiness Programme – South East Asia (COSCAP-SEA)	2001
Agence Communautaire de Supervision de la Sécurité et de la Sureté de l'Aviation Civile (ACSAC) Presently still operating as COSCAP-UEMOA during the parallel transition to ACSAC	COSCAP-UEMOA–2004. ACSAC founded in 2013 Not yet operational	East African Community Civil Aviation Safety and Security Agency (EAC-CASSOA)	2007
Agence de Supervision de la Sécurité Aérienne en Afrique Centrale (ASSA-AC)	COSCAP-CEMAC – 2005 ASSA-AC –2016	European Aviation Safety Agency (EASA)	2003
Autorités Africaines et Malagauche de l'Aviation Civil/African and Malagasy Civil Aviation Authorities (AAMAC)	2015	InterState Aviation Committee (IAC)	1991
Banjul Accord Group Aviation Safety Oversight Organization (BAGASOO)	COSCAP-BAG –2005 BAGASOO – 2010	Interim Southern African Development Community Aviation Safety Organization (ISASO)	COSCAP-SADC – 2008 - 2016 SASO – 2016 (as the interim SASO)
Civil Aviation Safety and Security Oversight System (CASSOS)	RASOS – 2001 CASSOS – 2008	Pacific Aviation Safety Office (PASO)	2007
Cooperative Development of Operational Safety and Continuing Airworthiness Programme – North Asia (COSCAP-NA)	2003	Regional Safety Oversight Cooperation System (SRVSOP)	COSCAP-LAM – 2001 SRVSOP – 2003
Cooperative Development of Operational Safety and Continuing Airworthiness Programme – South Asia (COSCAP-SA)	1997		

According to an evaluation of RSOOs conducted by ICAO in 2017, the majority of RSOOs have yet to exploit their full potential as cost effective providers of safety oversight. With few exceptions, RSOOs continue to face major challenges due to the lack of manpower and financial resources and inadequate mandates that fail to allow for proper delegation of tasks and functions from their Member States. Even in the case of a fully institutionalized RSOO, whose mandate allows for the provision of operational assistance, a lack of funding and technical manpower resources severely restrict its ability to assist States. In such cases, the RSOO is limited to Level 1 coordinating, consultative and advisory tasks. RSOOs, such as the BAGASOO, CASSOA and PASO have, for most of their operational terms, faced funding and manpower shortages that have prevented them from fully delivering on their mandates. Where RSOOs have been more successful, as in the case of ACSA and EASA, it has primarily been because funding for these organizations has been adequate, stable and sustainable.

Experience over the last ten years therefore points to the fact that the mere institutionalization of a COSCAP is not enough to guarantee success. There are three major constituents that go towards the development of an effective and efficient RSOO. These include the political commitment of the Member States, a legal framework that provides for the proper level of delegation of authority to the RSOO or its empowerment and a stable and sustainable funding platform.

### 3.1.3 The Forum on Regional Safety Oversight Organizations (RSOOs) for Global Aviation Safety, the RSOO Cooperative Platform and the GASOS

It was in order to try and resolve these challenges that both ICAO and the European Aviation Safety Agency (EASA) jointly held the Forum on Regional Safety Oversight Organizations (RSOOs) for Global Aviation Safety in Ezulwini, Swaziland in March 2017. The Forum agreed on a strategy for strengthening RSOOs and enhancing the provision of safety oversight that included an evaluation of RSOOs, the implementation of a global aviation safety oversight system (GASOS) and the establishment of an RSOO Cooperative Platform. The evaluation of the RSOOs was completed in 2017 and work on the RSOO Cooperative Platform is ongoing.

The Forum also recommended a classification of RSOOs to include three levels of delegation of tasks and functions. Level 1 relates to the provision of advisory and coordinating services, Level 2 enables an RSOO to provide operational assistance and Level 3 enables the RSOO to carry out certification functions, as well as the issuance of regulations and full safety investigations. The three Levels will be used to clearly define the capabilities of an RSOO and will provide a basis for assessing RSOOs with respect to the GASOS.

At present, two RSOOs can be said to provide Level 3 tasks and functions. In addition, in spite of the need for most RSOOs to provide operational assistance, only two RSOOs – AAMAC and ACSA – are capable of accepting Level 2 task delegations. All the other RSOOs, including those institutionalized RSOOs that have transitioned from COSCAPs, currently carry out advisory and coordinating functions at Level 1. It is therefore expected that the GASOS will give further impetus to the strengthening of RSOOs, in order that the majority of them will at least be able to provide Level 2 operational assistance to their Member States.

The GASOS is to be implemented within the framework of the ICAO GASP, as a voluntary and standardized mechanism for assessing, recognizing and monitoring the capabilities of safety oversight organizations (SOOs), including RSOOs. It is intended that the GASOS will enable the strengthening of SOOs, including the RSOOs, to make them more effective and efficient in supporting States. Recommendations for the implementation of the GASOS will go to the thirteenth Air Navigation Conference this coming October and will be presented for endorsement by the 40th Session of the ICAO Assembly in 2019. The aim is to launch the programme in a phased approach, starting in 2020.

## 4. SOUTH ASIA REGIONAL AVIATION SAFETY

### 4.1 Information Sources and Sampling

During the Research Phase the team collected data to carry out the Study using all available mediums. These included primarily the visits to States, which were preceded by a questionnaire for both CAAs and Ministries in charge of civil aviation. On the basis of the series of visits, detailed notes were coordinated within the team for consistency and were then supplied in draft to each of the visited States for clarification as necessary, and agreement.

Additionally, extensive use was made of ICAO documentation such as iSTARS, ICAO USOAP, COSCAP-SA records and the RSOO evaluation. In respect to the economic coverage, extensive research was undertaken through all related and available public sources.

### 4.2 Level of Aviation Activity in South Asia

The over 230 airlines in Asia have, according to global analytics firm HIS, an estimated 27 percent of the world's commercial aircraft fleet. Asia/Pacific also accounted for 28 percent of international and 40 percent of domestic scheduled air passenger traffic in 2017.

This increase, particularly in South Asia, is driven by fast-rising household incomes, especially in India, which help to make air travel much more affordable. In this respect, Boeing, in its *Current Market Outlook 2017-203*, predicts that the South Asia region will experience an average annual rate of growth (AARG) in GDP of 6.1% compared to 2.8% for the global economy and 3.9% for Asia and the Pacific. This economic growth is fuelling the demand for travel as greater numbers of people are able to afford to fly. At the same time, demand is being propelled by very active low-cost airlines in the region and investments made in airports and air navigation infrastructure.

In the period between 2007 and 2016, India experienced an average annual growth in GDP of 7.2%. The impact of this rising wealth was reflected in the 18% increase in domestic passenger growth in the year ending June 2017. India-domiciled airlines generate 80 percent of the total available seat-kilometres (ASKs)<sup>3</sup> for the region, and it is expected to be the key contributor to future expansion of civil aviation activity in South Asia.

The table below shows that all of the SA States have experienced strong compound growth rates for at least the past decade, with signs that this growth is even accelerating. In Sri Lanka (*according to the Annual Report of Sri Lankan Airlines -2016/201*) tourist arrivals were up 16 percent and airline capacity into Sri Lanka increased by 11 percent. In Nepal, the *Kathmandu Post* reported an increase of domestic air passenger movement of up to 39.5 percent and in Bangladesh, *The Bangladesh Monitor*, States that domestic passengers grew from 648,019 in 2013 to 1,067,537 in 2017 Boeing, in its *Current Market Outlook 2017 – 2036*, States that it expects aircraft deliveries to South Asia to be 2200. It predicts an annual rate of growth of ASKs for South Asia of 8% for the coming 20 years and that the aircraft fleet would average growth of 8.2% annually. Airbus, in its *Global Market Forecast*, predicts that in 2036 the domestic Indian market will be equal in size to the current market in the

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<sup>3</sup> ASKs are the most widely used measure of airline capacity, one ASK being the product of seats flown and distance carried. Note that only seats available for paying passengers are used for the purposes of calculation. Filled seats (paying passengers) generates the statistic "revenue passenger kilometres" (RPKs). This is often used as a measure of the demand for airline travel.



USA. These growth rates are higher even than for the Asia-Pacific region as a whole, and they are very much higher than their respective global averages.

Table 4-1 : Indicators of Growth in Aviation Activity in South Asia

State	Recent Activity Level		Growth		
	Year	Departing International Passengers	Period	AARG	Multiple of base year
Bangladesh	2017	3,801,724	2007 to 2017	10.7%	2.8
Bhutan	2017	163,364	2010 to 2017	14.2%	2.5
India	2016-17	27,350,000	2007-08 to 2016-17	8.1%	2.0
Maldives	2017	1,702,242	2007 to 2017	7.5%	2.1
Nepal	2016-17	2,083,150	2006-7 to 2016-17	9.1%	2.4
Pakistan	2017-18	7,481,190	2007-08 to 2017-18	7.0%	2.0
Sri Lanka	2017	4,966,776	2007 to 2017	7.3%	2.0

Sources: Official statistics published by Ministries, CAAs and World Bank.

Notes: Growth for Bangladesh based on total of domestic and international passengers. Growth for Maldives based on tourist arrivals.

### 4.3 Challenges in Accommodating Growth in Aviation Activity

Strategically, the main challenges in accommodating this growth in aviation in the region are the constraints in the bilateral air services regimes, which are still largely traditional and less liberal. Note that the medium-term plan by SAARC to negotiate a regional air services agreement (RASA) is likely to have a significant effect on this constraint. The timings for the completion of such a RASA are however unknown and likely to be drawn out.

This bilateral growth restraint is compounded by the limitations in infrastructure, notably in the capacity of the region's airports and its air navigation systems. The effect of these infrastructure constraints varies considerably between States. According to the Centre for Asia Pacific Aviation (CAPA), the Capital Expenditure (CAPEX) injection to the airport infrastructure in India is sub-optimal. CAPA's view is that the airport operators remain conservative in their growth estimates, having been caught off-guard by the 20 percent compounded annual growth rate (CAGR) domestic growth over the last 3 years. As a further example, the present capacity of Tribhuvan International Airport in Kathmandu is already a constraint on efficient operations and has ongoing safety issues. Other airports in the region are in a similar situation.

Considering the firm orders already placed by the airlines in the SA region with aircraft manufacturers, there will be an average of over 2 transport category aircraft deliveries every week in the region! This high injection of capacity in turn means that the technical human resources required to operate and maintain the fleets and the infrastructure capacity requirements (be it airport or air navigation capacity) will, unless addressed, be a significant detriment to efficient and safe operations. Based on observations made during the team's visits to the COSCAP Member States of SA in the conduct of this Feasibility Study, it was evident that this rapid growth in aviation activity places all States in the position where they require some form of assistance and support at the regional level, to ensure aviation safety oversight. The sluggish response by Governments to the high growth, and

inability to bring about both the changes required and the new capabilities to meet these demands is creating less effective aviation oversight systems.

A major contributing factor in many States is the need of aviation safety regulators in SA to move away from the conflict caused by being both the service provider and regulator. Equally, many of the CAAs in the region continue to function under traditional public service regulations and the associated bureaucracy which impedes effective recruitment, training, competence and retention of the technical expertise required for safe, orderly and economic air transport, as required under the Chicago Convention.

#### **4.4 ICAO USOAP Findings and Levels of Effective Implementation (EI)**

Assembly Resolution A32-11 – “Establishment of an ICAO Universal Safety Oversight Audit Programme” – resolved that the USOAP programme be established comprising regular, mandatory, systematic and harmonized safety audits to be carried out by ICAO.

ICAO launched USOAP in 1999 due to concerns about the lack of effective aviation safety oversight in many States and the effect of this on aviation safety worldwide. The audit programme was introduced to assess States’ capability and effectiveness in maintaining and implementing the SARPs contained in the Annexes of the Chicago Convention– which establishes the minimum requirements to maintain the safety and security of global civil aviation.

ICAO has established that effective State oversight of the safety of civil aviation covers eight critical elements and the primary focus of the audits has remained based on the requirements of these. These eight Critical Elements (CEs) are:

- CE-1 — Primary aviation legislation
- CE-2 — Specific operating regulations
- CE-3 — State system and functions
- CE-4 — Qualified technical personnel
- CE-5—Technical guidance, tools and provision of safety-critical information
- CE-6 — Licensing, certification, authorization and approval obligations
- CE-7 — Surveillance obligations
- CE-8 — Resolution of safety issues

Additionally, USOAP addresses eight Audit Areas (AA) as follows:

- Legislation
- Organization
- Licensing
- Operations
- Airworthiness
- Accident Investigation
- Air Navigation Services
- Aerodromes

Modifications to the audit process were brought about by ICAO over the years, from 2005, 2007, 2010 and 2013. The audit now measures the level of “Effective Implementation” (EI) for each of these CEs, giving an overall average EI for the State. The audit also provides figures for the EI of each AA. ICAO

may also identify that an audit finding be classified as a Significant Safety Concern (SSC). In those cases where subsequent follow up indicates insufficient attention to rectify an SSC, ICAO may indicate this with a "red flag". ICAO also shows the performance of a State's safety oversight system relative to the global average. This information is made available to the general public on ICAO's website.

Aviation safety attracts considerable attention in the media and it is important that States are able to report that they have a sound safety oversight system as audited by ICAO. This is always so but is especially important when a State's economy is heavily reliant on tourism.

Additionally, the USA's FAA (FAA) IASA programme is relevant when a State's airlines have flights to and from the USA or have code share arrangements for such flights. Similar to ICAO USOAP, the FAA International Aviation Safety Assessment Program (IASA) looks at the State's ability to correctly oversee aviation safety. An IASA decision to give a State a Category 2 rating imposes restrictions on the airlines of that State.

The EU also undertakes safety checks and imposes bans on airlines flying to and from the EU when they see a significant cause for concern about safety. Studies carried out on such actions demonstrate the significant short and long term economic consequences when a State does not demonstrate at least an acceptable level of safety oversight in an ICAO USOAP audit or one of the other assessment systems.

An effective, sustainable, efficient State Aviation Safety Oversight Body requires the following attributes as a minimum:

- A set of National legislation which empowers an appropriate authority.
- A Civil Aviation Authority which is able to exercise its powers independently.
- A staff, including experts who are adequately trained/refreshed/active/retained.
- Procedures and processes to effectively undertake the regulatory functions.

Under the USOAP program of ICAO the SA States have undergone audits with seven out of the eight States audited; the most recent audits were in 2017 and 2018. The levels of overall Effective Implementation (EI) for each State audited recently are: Bangladesh – EI 74.76 percent, Bhutan – 38% (ICVM Results awaited but likely to be around 55%), India – EI 57.44 percent, Nepal - EI 66.08 percent and Sri Lanka – EI 88.57 percent.

Those States that have not had recent audits are: Afghanistan (no audit at all); Maldives (2014) with EI 66.92 percent; Pakistan (2011) with EI 84.67 percent. In some cases, these States are expecting audits in the near future (2019).

The majority of SA States have recorded an overall level of EI above the global average of 66 percent. However, further inspection of the results for the individual CEs reveals that the EIs for CE4 – Technical Experts remain low for most States and are even lower for CE8 - Resolution of Safety Issues. Looking at the various technical areas, the EI for Accident Investigation (AIG) is noticeably lower than the global average for most of the SA States.

#### 4.5 Regional Aviation Safety Outcomes

The Table below provide an overview of the fixed wing commercial operation accident and fatal accident rates for the region over the period 2014 to 2018. Over this period the total number of accidents (accident/10,000 cycles) has decreased, although fatal accident numbers have remained constant. The year 2016 recorded the highest number of fatalities.

Table 4.2: Regional Accident Statistics 2014 - 2018

Accidents	AFG	BAN	BHU	IND	MAL	PAK	SRI	TOTAL
Fatal	0	1	0	1	0	2	0	4
Non-Fatal	4	1	0	8	1	2	1	17

Source: EASA South Asia Regionb Safety Picture Aug 2018.

Additionally, over this period the region had 5 fatal and 3 non-fatal rotary wing commercial operation accidents.

## **5. EVOLUTION OF COSCAP-SA AND PRESENT FUNCTIONS**

COSCAP-SA, under the aegis of ICAO, is a joint programme of SA States. Each of these States is additionally a member of the South Asian Association for Regional Cooperation (SAARC). The States are; namely, Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The COSCAP-SA structure also includes donors and safety partners such as Airbus, Boeing, EASA/EC, DGAC France, FAA.

ICAO Assembly Resolution A29-13 - "Improvement of Safety Oversight" – recognized that many Contracting States may not have the regulatory framework or financial or technical resources to carry out the minimum requirements of the Chicago Convention.

In Assembly Resolution A33-9 – "Resolving deficiencies identified by the USOAP and encouraging quality assurance for technical cooperation projects" a request was made to the Secretary General of ICAO to support, foster and facilitate the use of bilateral and multilateral agreements for projects between States and international or regional organizations.

The COSCAP-SA programme is aimed at assisting the participant States in developing regulations and standards and to improve their independent oversight capabilities. The programme commenced in 1997 and is presently in its Phase IV (2013 – 2018).

Programme finances are managed through a Trust Fund which holds Member States' annual subscriptions and contributions of donor agencies including partners. The contribution of the States is determined by a formula contained in the Programme Document which is based on the services rendered to the individual States.

The programme is managed by a SC consisting of the DGs of the Member States, the ICAO Regional Director – Asia and Pacific (APAC), the Director ICAO Technical Cooperation Bureau (TCB) and the Chief Technical Advisor (CTA). The ICAO APAC Office carries out overall oversight and provide guidance and technical support to the programme. The ICAO TCB provides financial management and the CTA manages and coordinates the programme operationally.

The SC is headed by the Chairperson who is selected amongst the SC Members, holds office for a period of two consecutive years and presides over the SC Meetings which are held every year. The current Chairman is the Chief Executive of the Maldives Civil Aviation Authority.

Historically, the location of the COSCAP-SA office has been rotated periodically among its Member States so far including Sri Lanka and Bangladesh. Currently, the office is based in Bhutan having relocated there in 2016.

### **5.1 Memorandum of Understanding (MOU)**

The respective DGCAs of the SA States met at the ICAO APAC Office on 7<sup>th</sup> and 8<sup>th</sup> January 1997, to approve the Project Document for the Establishment of COSCAP-SA for a period of five years. An MoU to this effect was also signed.

With Assembly Resolution A33-8 stating "Continuation and expansion of the ICAO Universal Safety Oversight Audit Programme ", the 7<sup>th</sup> Steering Committee of COSCAP-SA decided to expand the

programme to include the technical areas of Aerodromes and Ground Aids (AGA), Air Navigation Services (ANS), and Air Traffic Management (ATM).

The MOU was later subsumed into the Institutional Framework and Administrative Procedures Manual (IFAPM).

## **5.2 Institutional Framework and Administrative Procedures Manual (IFAPM)**

The IFAPM was amended last on 12<sup>th</sup> May 2009, at the direction of the 17<sup>th</sup> SC Meeting. Following the signature of the IFAPM by 7 SA States, bi-lateral delegation agreements were signed by 6 of 8 States. These bi-lateral agreements between SA States and COSCAP-SA specifically delegate certain oversight tasks without relinquishing the authority of the CAAs who remain the sole authority to exercise certifications, approvals etc.

As Stated under the Preamble of the IFAPM – the primary objective of the Manual is to lay the foundation for the progressive elevation of COSCAP-SA towards the establishment of a RSOO of the Member States of SA.

## **5.3 Functions**

The key functions of COSCAP-SA include:

- Classroom and on-the-job training (OJT) for regional flight safety inspectors assigned to the Programme and national inspectors and other personnel.
- Development of guidance material to be adopted or adapted by the Member States.
- Providing on-site technical assistance on various technical fields to Member States with the help of Regional and International Experts.
- Establishment of a regional team of experts to recommend and oversee the implementation of accident prevention measures – the South Asia Regional Aviation Safety Team (SARAST).
- Develop and maintain a register of COSCAP-SA Regional Experts for Member States to request technical assistance as needed.

## **5.4 Staffing**

The COSCAP-SA staffing includes the CTA – referred to as the Programme Coordinator in the IFAPM, together with technical experts. These staff members may be either International or Regional Experts – based on the resources and direction provided by the SC and by agreement with ICAO. These staff members are directly contracted by the Technical Cooperation Bureau (TCB) of ICAO using funds held in the COSCAP-SA Trust Account.

In the initial phases of COSCAP-SA there were up to 5 experts – both International and Regional. However, at the present time in Phase IV, the only technical member of staff is the CTA – an International Flight Operations (OPS) Expert.

A second Regional Expert in the Airworthiness (AIR) position has been approved by the SC for Phase IV. However, recruitment for this position has not been completed.

As part of the host agreement and included in each Programme Document, the support staff are provided by the Member State where the COSCAP-SA is located at any particular time.

The level and number of technical staff have necessarily to be based on the resources available. This presently greatly limits the staffing levels, in spite of a need for these staff.

There are regional policy and security issues that restrict travel to all countries by all Regional Experts, thus further limiting the availability of experts due to nationality constraints, which substantially hampers the effectiveness of any regionally based organisation.

Although harmonization of rules is included in the IFAPM this task has not been implemented at a fully satisfactory level. Consequently, rules and regulations followed by the MS are not fully harmonized. Some significant effort under the SA Regional Initiative (SARI) has taken place and SARI is continuing in this role; however this is not a permanent arrangement. The need will continue to exist when the funding for SARI discontinues. As a result, the COSCAP-SA experts, when deputized to help Member States, may not fully understand nuances and details in the national rules and may not be able to perform to the full satisfaction of the receiving State.

### 5.5 Challenges and Limitations

A major challenge for COSCAP-SA stems from the diversity of the aviation activities in the countries in the region and therefore the requirements of the respective safety oversight organisations. This varied spectrum ranges from a State having two operators with six aircraft to a State having 20 operators with over 700 aircraft. Such diversification is also reflected in parameters, such as numbers of airports and size and complexity of Air Navigation Service Providers. This broad variation raises difficulties in the scope and scale of the effort and availability of resources and ability of the States. In addition, the harmonization and standardization of regulations in the South Asia Region is far from complete. Consequently, this is an additional significant challenge for effective aviation safety oversight at a regional level.

In the first instance, the COSCAP-SA programme was exclusively focused on flight operations (OPS) and airworthiness of Aircraft (AIR), but the inclusion of ANS/ATM/AGA/AIG in the areas in the USOP audits meant a broader scope but also even greater strain on the limited resources.

The two most important global challenges for CAAs are also at the forefront in SA; namely, having access to adequate and secure sources of funds, and the ability to recruit and retain the necessary technical experts.

Many countries around the world have, or had in the past, a system of financing the public sector under which all income received by Government entities for fees, charges, fines, etc. are/were remitted to the central treasury. Under these arrangements, entities such as CAAs are/were allocated an annual capital works budget and an operating budget. With the creation of autonomous/commercialised entities to operate airports and air navigation services and with an increasing emphasis on user fees, the systems of financing CAAs is under continuing evolution.

As a result, the challenge of assuring adequate financial support for independent safety oversight is being overcome in many States. Within the Member States of COSCAP-SA, there are differing arrangements for financing the CAAs. Varying degrees of financial controls are applied by the respective Ministries of Finance and additional constraints apply when expenditure is required in foreign currencies and when international travel must be undertaken. Many of the CAAs have to a

greater or lesser extent autonomy over their budgets and retention of income. However, some of the smaller States, Bhutan in particular, lack the necessary financial resource allocation to perform its functions.

In most States, the inspectors are employed as civil /public servants and their remuneration levels are not comparable to what these specialists could earn in the domestic aviation industry. For some, there are lucrative opportunities abroad in the context of a growing shortage of aviation professionals. Consequently, when young experts join and gain knowledge, experience and training; they are often lured away by the industry.

In addition to the wide pay gap, the various bureaucratic procedures and approval processes required for the necessary training to be imparted to the experts, means that their essential and recurrent/refresher training is curtailed.

Since COSCAP-SA is a cooperative initiative, the financial contributions made by the States, albeit based on an agreed formula, are not commensurate with the level and scale of assistance obtained/given to each of the Member States and has not been kept updated. In addition, the contributions, though agreed to under the MOU signed by all States, may not always be paid in full and on time. This does not allow the smooth implementation of the annual plans agreed to at the beginning of each year.

Although COSCAP-SA was established in accordance with an MoU, it is questioned whether it has the necessary legal foundation to perform operational functions on behalf of the Member States. Even when a particular State has its own legislation allowing formal delegation of authority to the COSCAP-SA experts and has provided a written delegation to this effect, experience has shown that this does not necessarily meet the strict legal basis of the USOAP audits. The ICAO Audits have subscribed to the prevailing view that COSCAPs are not a legal entity. Thus, although a State may be able to show that it has performed necessary tasks with the assistance of a COSCAP-SA expert, ICAO audits have concluded that the task was not carried out by acceptably authorized personnel.

In view of the nature of the programme, the limited resources of COSCAP-SA are used to address the challenges experienced by most of the States. As a consequence, even urgent and essential assistance needs of some States may receive a low priority compared to other actions designed to provide benefits for the majority of Member States.

## **5.6 Financing**

### **5.6.1 Funding levels – Phases I to IV**

At the commencement of the COSCAP-SA Project in 1997, it was estimated that the cost would be \$3,284,000 over a five-year period. As a response to ICAO Assembly Resolution A33-8 (Continuation and Expansion of ICAO Universal Safety Oversight Audit Programme), the Steering Committee decided to expand the scope of activities and to continue the initiative as a Programme. Phase I was extended for another 2 years and the budget was increased to \$4,936,896. The approved funding for Phase II which extended for three years was \$1,552,200. At the outset of Phase III commencing in FY2007-08 the approved budget for the following five years was \$2,421,600. The approved budget for Phase IV was increased to \$2,842,000.



Notably, the level of aviation activity has grown significantly in all of the Member States of COSCAP-SA since its formation in 1997. This expansion in aviation activity presents opportunities to increase the resources devoted to safety oversight. It also is an indicator that the workload of safety regulators has increased substantially over the life of COSCAP-SA, especially considering the recent spate of new airline entrants, the expansion of aircraft fleets, and the pressing demands on the supply of qualified and experienced human resources.

From the following table it is apparent that actual contributions fell short of the planned budgets in each Phase. Notwithstanding the fact that the annual outlays by the Member States more than doubled over the two decades of COSCAP-SA, the total funding for regional safety oversight has not kept pace with the rate of growth of aviation activity. It also emphasises the importance of the advice provided in ICAO Doc 9734 Part B that a reliance on grants and loans should not be regarded as a sustainable strategy for funding an RSOO.

Table 5-1 : COSCAP - SA Project Funding - Contributions as at 03 January 2018 in USD

Item	Phase I	Phase II	Phase III	Phase IV	Total
State contributions	\$1,866,579	\$773,304	\$1,755,011	\$2,819,057	\$7,213,951
Country-Specific Activities Funded Separately from COSCAP-SA State Contribution	\$0	\$7,800	\$52,350	\$0	\$60,150
In-kind Human Resources In lieu of Cash Contribution	\$0	\$0	\$0	\$20,674	\$20,674
Donor Contributions	\$1,127,468	\$185,000	\$157,146	\$74,010	\$1,543,624
NORAD Contribution	\$489,782	\$0	\$0	\$0	\$489,782
EC Phase I	\$387,731	\$0	\$0	\$0	\$387,731
IFFAS Contribution	\$0	\$169,900	\$0	\$0	\$169,900
<b>Total</b>	<b>\$3,871,560</b>	<b>\$1,136,004</b>	<b>\$1,964,507</b>	<b>\$2,913,741</b>	<b>\$9,885,812</b>
Annual cost to States	\$266,654	\$257,768	\$351,002	\$563,811	\$360,698
Annual cost of project/programme	\$553,080	\$378,668	\$392,901	\$582,748	\$494,291
Share of State contributions in total funding	48.2%	68.1%	89.3%	96.8%	73.0%

Source: DP-5: Programme Budget and Funding – 2017/2018. Presented by the APAC ICAO at the 26<sup>th</sup> Steering Committee Meeting of COSCAP-SA at Kathmandu, Nepal, 9-10 January 2018.

Note: this table does not fully reflect the contributions made in kind. In particular, it does not include the costs borne by the host State. Nor does it include the support provided by the region's airlines in bearing the cost of staff travel. Also, it does take account of the costs borne by the Member States in participating in COSCAP-SA activities.

The following table shows that travel costs represent a major cost for COSCAP-SA. Having said that, two-thirds of COSCAP-SAs budget is required to pay its staff. This is to be expected, but it is also an area where there are increasing cost pressures for qualified and experienced personnel. An allowance of between 1-2% has been applied in the past in the budgeting to account for rising costs, but the effectiveness of an RSOO-SA undertaking Level 2 functions will depend on being able to attract and retain necessary staff.

Table 5-2 : Programme Budget Covering Trust Fund Contribution (in US\$)

Expense Category	Total Phase IV	Annual Expense	Share
International Professional Posts	\$1,456,400	\$242,733	51%
Local Staff	\$51,400	\$8,567	2%
National Professional	\$283,700	\$47,283	10%
Sub-Contracted International	\$81,100	\$13,517	3%
Total Staffing	\$1,872,600	\$312,100	66%
Travel	\$561,600	\$93,600	20%
Equipment	\$21,000	\$3,500	1%
Administration	\$128,500	\$21,417	5%
Overhead Charges	\$258,300	\$43,050	9%
Total Budgeted Expenses	\$2,842,000	\$473,667	100%

Source: Project Document - Phase IV (1 October 2013 - 30 September 2018).

One of the key success factors identified for regional safety oversight initiatives is the ability to standardise/harmonise regulations and procedures and thereby to provide regulators with common grounds for safety oversight. The value of harmonising rules, regulations and procedures was recognised at the 17<sup>th</sup> Meeting of the COSCAP-SA SC in November 2007 and, at its subsequent meetings, the Committee endorsed the technical competence of SARI. EASA supports SARI by organising technical activities and setting up working groups for the development of regulations based on EU rules. EU/EASA have however indicated that their continued funding support cannot be guaranteed. Accordingly, EASA urged the States in SA to develop a sustainable arrangement for continuing the work on harmonisation of regulations and their implementation.

The COSCAP-SA SC has given consideration to whether SARI should be brought under its umbrella. This could be, for example, as an adjunct to the financing model so that contributions from States could be made for both COSCAP-SA and SARI under a Trust Fund arrangement.

It has been recognised that there has been a lack of coherent and consistent level of implementation of already developed SARI Parts in the region and there continues to be a need to provide SARI with a formal and binding mechanism which will benefit the COSCAP-SA Member States in developing, implementing and updating harmonized rules, regulations and procedures. It is timely with the evaluation of options for further institutional development of COSCAP-SA as an RSOO Level 2 that future arrangements for SARI's work be considered.

Accordingly, it is relevant as well to examine the financial commitments necessary for this purpose. Based on advice provided by SARI, the cost of its work on regulation and development and implementation of the SARI Parts between 2008 and 2015 amounted to:

- Part 145 (Approval of Maintenance Organisation) - \$660,000, including inputs from Airbus at the commencement of the Project as well as EASA backstop support.
- Part M (continued airworthiness) - \$540,000 for work carried out between 2012 and 2015.
- Part 66 & 147 - \$660,000 for work carried out between 2010 and 2015.
- Part 21 - \$660,000 for work carried out between 2012 and 2015.

In summary, the costs associated with SARI amounted to \$2.52 million, including all contributions, over the period 2008 to 2015. Note that activities under SARI were reduced from the end of 2015 to 2017, resulting from lower levels of funding. Again, it is necessary to consider the costs borne by the Member States in SARI activities.

#### 5.6.2 COSCAP-SA cost sharing formula

At its third meeting in November 1988, the COSCAP-SA SC embraced the principle that the formula for apportioning its costs among Member States should be based on the benefits provided and should also include a detailed analysis of costs and benefits that are provided to members.

DP-4 "Cost Sharing", presented at the 4<sup>th</sup> SC Meeting in Colombo, 1-2 June 1999 proposed a methodology based first on an apportionment of activities carried out in individual Member States and activities directed at the general Programme. This work aimed at meeting the needs of all Member States was estimated to consume 60% of the total resources. The proposition was that this should be shared equally. That is, each of the seven Member States should bear 8.6% of the total cost. To this should be added the benefits received individually by the State. But in making that calculation it was noted that 60% of the time spent by professionals while on missions also benefited all States, being, for example, involvement in regional training events.

In that case, the idea was that only 40% of total costs should be regarded as State-specific activity. These "direct" benefits were assumed to be proportional to the level of aviation activity, as reflected in the Annual Flight Operations Surveillance Hours devoted to Operations and Airworthiness. So, for example, India had 53.7% of the total Surveillance Hours for the region, and 40% of this plus the 8.6% allocated to each State, gave an apportionment of approximately 30% to India. The remaining Member States were apportioned between 9% and 15% of total costs.

At its 8<sup>th</sup> Meeting in May 2001, the COSCAP-SA SC approved the first revision of the Project Document (Revision 1) and agreed that contributions should conform to the following shares:

- Bangladesh 14.79 %
- Bhutan 09.48 %
- India 19.87 %
- Maldives 12.80 %
- Nepal 14.79 %
- Pakistan 15.67 %
- Sri Lanka 12.80 %

The matter remained under review, particularly as the oversight capabilities of most of the Member States was changing. The following table indicates the allocations reflected in the actual contributions paid by the Member States over the past two decades.

Table 5-3 : Shares of State Contributions COSCAP - SA Project Funding - Contributions as at 03 January 2018

State	Phase I	Phase II	Phase II	Phase IV	Average over all Phases
Bangladesh	10.87%	11.63%	13.86%	16.77%	13.98%
Bhutan	3.36%	3.87%	5.69%	5.83%	4.95%
India	32.17%	28.34%	21.74%	23.96%	26.01%
Maldives	8.35%	8.40%	5.70%	5.84%	6.73%
Nepal	10.70%	9.04%	15.21%	16.76%	13.99%
Pakistan	20.18%	22.33%	22.48%	16.55%	19.55%
Sri Lanka	14.36%	16.38%	15.32%	14.29%	14.78%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Based on DP-5: Programme Budget and Funding – 2017/2018. Presented by the APAC ICAO at the 26<sup>th</sup> Steering Committee Meeting of COSCAP-SA at Kathmandu, Nepal, 9-10 January 2018.

A cost-benefit analysis presented to the 13<sup>th</sup> SC Meeting calculated the benefits to each Member State as per the following table. The “Common Benefits” here relate to all activities not including the technical assistance provided by the COSCAP-SA professionals. It can be seen that there is a reasonably close relationship between the common and total benefits, and there is a reasonable correspondence in most cases to the actual allocations of costs evident above. Thus, it is reasonable to infer that the actual allocation of costs has been influenced by assessments of the benefits received by individual Member States, at least based on calculations of the benefits arising from the activities carried out in Phases I and II of the Programme.

Table 5-4 : Benefits and Their Distribution Amongst Member States of COSCAP-SA

State	Common Benefits		Total Benefits	
	Amount	Share	Amount	Share
Bangladesh	\$614,500	9.9%	\$673,300	10.1%
Bhutan	\$359,300	5.8%	\$391,500	5.9%
India	\$1,907,800	30.7%	\$1,987,800	29.9%
Maldives	\$553,100	8.9%	\$617,600	9.3%
Pakistan	\$1,093,700	17.6%	\$1,134,500	17.1%
Sri Lanka	\$684,900	11.0%	\$771,300	11.6%
Total	\$6,207,300	100.0%	\$1,552,623	100.0%

Source: Based on DP-3: Cost versus Benefit 13<sup>th</sup> Steering Committee Meeting, New Delhi, India, 29 November – 1 December 2004.

The question arises whether these funding allocations are appropriate for future use for a RSOO carrying out Level 2 functions. As noted, the levels of activity have changed as have the capabilities of the respective safety oversight authorities. Also, the scope of activities and the priorities for COSCAP-SA have evolved.

In relation to the Financial considerations and based on the information provided by the Member States during the fact-finding stage of the Study, it would be useful to proceed with the consideration that:

- i. Some activities generate benefits directly to individual Member States.
- ii. Some activities could benefit a sub-set of the Membership.
- iii. Other activities are of a general nature and provide benefits to all Member States.

With regard to type (i), it is reasonable to expect that each State could cover the costs of the services provided. In situations where Level 2 operational functions are to be carried out by the RSOO experts, it also provides the opportunity to raise necessary funds through user charges. Some States indicated that the CAA has the power to set charges for regulatory services according to the costs incurred. In such situations industry can be charged accordingly. In the team's discussions with industry representatives, there was an understanding that benefits could flow from this type of arrangement because CAAs would be able to respond more promptly to applications for licences and certifications. In the dynamic market conditions being experienced in South Asia, this flexibility would be valuable.

This approach is consistent with the recommendation contained in ICAO Doc 9734 Part B that RSOOs should levy charges for licensing and certification, oversight functions and resolution of safety concerns on a cost recovery basis, including appropriate amounts for cost of capital and depreciation, as well as the costs of operation, management and administration.

Including Type (ii) in the underlying principles adds more flexibility because it recognises that some sub-sets of the membership might wish to prioritise certain activities. A cost allocation for Type (ii) could be based on a combination of the approaches adopted for Types (i) and (iii).

Type (iii) activities can be categorised as "jointly incurred costs". The approach considered previously was to allocate these equally to all Member States. On one level this appears to be equitable, but it is not necessarily a formula that will lead to an optimal outcome for the group as a whole. This is a well-known issue and the economist's solution to the allocation of joint costs takes account of willingness to pay. In this case, account could be taken of the benefits that can be expected to arise as well as ability to pay. This is a more complex approach, but it recognises that equal allocations are essentially an arbitrary choice that does not necessarily result in an equitable distribution, and nor is it likely to lead to the most efficient decisions to tackle the mission of the group.

The impression gained from the analysis of shares of State Contributions to COSCAP-SA suggest that the SC has taken account of these considerations.<sup>4</sup> But it would be useful to undertake periodic analyses of the distribution of net benefits arising from the common programmes to be used as a guide by the SC.

### 5.6.3 Sources of funds

A traditional form of financing public sector entities in many States has been for the central treasury/finance ministry to claim all sources of income. The CAA then receives an annual operating budget and a capital works budget from the central pool of funds. The trend globally over many

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<sup>4</sup> For example, the request from the Royal Government of Bhutan to fix its contribution at US\$25,000 per year, taking into consideration its limited aeronautical activities and the ability of Bhutan to afford a larger contribution at that time, was given favourable consideration by the Steering Committee at its 20<sup>th</sup> Meeting.

decades has been to move away from this model and to grant airports, air navigation services providers and CAAs autonomy – including the ability to retain funds from their charges. The process of separating regulators from the service providers adds complexity to this process of change, particularly in ensuring that the regulator has a sustainable source of independent finance.

The following table has been compiled based on information obtained from the SA States during the fact-finding stage of this Study. Most of the CAAs gave the impression that they are able to cover the costs of safety oversight from their approved budgets or at least they believe that they have opportunities to argue a case for increased levels of funding. This is becoming increasingly important given the rise in costs driven by industry growth pressures. User charges for the provision of aviation services are being applied in SA, but the practice of hypothecating a portion of these funds specifically for safety oversight is not yet fully established.

Table 5-5 : Overview of Funding Arrangements for Safety Oversight in South Asia

State	Source of Funds	Comments
Bangladesh	All income from fees and charges is retained by CAAB, apart from a “tax” paid to the Government. Charges include an Embarkation Charge, Aerodrome Charges, Air Navigation Charges and Fees for Licensing, etc.	Approval of the level of fees and charges requires submission to the Ministry of Transport and approval is then required from the Ministry of Finance and the Legal Ministry.
Bhutan	The BCAA prepares an annual budget and submits this to the Ministry of Finance. The contribution for COSCAP-SA is included in this budget.	All income from fees and charges is remitted directly to the Ministry of Finance. This includes any income from fees and charges for licensing fees, etc., though this is small. The Personnel Licensing Charges were revised in February 2018.
India	DGCA receives an annual budget allocation from the Ministry of Finance.	Income derived from licensing fees goes to central Government funds, but there has been recent debate about allowing DGCA to retain them.
Maldives	A portion of the Airport Services Charge levied on departing passengers has been allocated to the MCAA.	The Attorney General is currently reviewing a means to formally hypothecate these funds to the MCAA.
Nepal	CAAN obtains its income from fees and charges that are approved by the Government of Nepal in accordance with Civil Aviation Authority of Nepal, Airport Service Charge Regulation, 2067 (2010)	The income from these fees and charges is retained by CAAN and administered by its Board. The Minister of Finance is a Member of the Board of CAAN, but there is no separate oversight of the budget by the Ministry of Finance.
Pakistan	PCAA derives its income from fees and charges levied on users (passenger embarkation fee and charges on aircraft including on air navigation services) as well as from non-aeronautical sources.	The CAA retains the income it earns, but its annual budget of the CAA is approved by the Cabinet.
Sri Lanka	CAASL derives its income mostly from an “Overseas Sales Charge” (OSS). The CAA also levies charges for regulatory services.	The CAA generates an income that is sufficient to cover its costs and to earn a surplus that is returned to the Ministry of Finance. The level of the OSS is set by the Government. The levels of charges for regulatory services are set low in order to encourage development of the aviation industry.

A common theme encountered in SA is that the process of separating regulatory authorities from the service providers is under way in many States; although it is at different stages of the process in each. This process is a complex one requiring sound legal and institutional preparations. Attention is drawn to a report commissioned for the FAA in 2014 in which the experiences in separating ANSPs from their respective regulators in the United Kingdom, Canada, New Zealand, Australia, France and Germany were examined.<sup>5</sup> Critically, many of these CAAs faced budgetary pressures at some time once they became autonomous. An important conclusion was that regular reviews of funding mechanisms are needed to ensure that the Government consciously determines the adequacy of the CAA's revenues in the light of evolving regulatory needs.

In varying degrees, the States in SA are embracing the global trend away from traditional public finance models to a reliance on user charges to recover the costs of service provision, including regulatory oversight. Mechanisms also exist for allowing the CAAs to retain these funds and to have freedom to set their budgets and to have opportunities to review charges, but it is reasonable to conclude that the evolutionary process has yet to reach a mature stage. The global experiences in funding safety oversight at the national and regional levels need to be kept in mind. In this situation it is likely that the RSOO would need to continue to rely on annual appropriations from the States, at least initially, and there will be an attendant risk that timely and adequate contributions from all Member States could be difficult to sustain at all times. At the very minimum sufficient funds are needed to cover the contract for a rolling 12-month period.<sup>6</sup>

The conclusion reached in ICAO's recent review of global experiences with RSOOs was that *"the search for a more stable and sustainable funding platform for an RSOO usually means moving away from Member State contributions and towards funding mechanisms that are dependent on the use of either passenger safety fees and/or air navigation overflight charges and user fees."*<sup>7</sup> That Study noted that PASO is in the final stages of introducing a passenger safety fee in the Pacific Islands<sup>8</sup> and ACSA successfully uses funding derived from air navigation charges. Other RSOOs, such as BAGASOO and CASSOA, also are considering the use of a passenger safety fee. Another approach to address this would be to secure an income stream from a levy added to air navigation charges.

ICAO Doc 9734 Part B contains guidance on how user charges levied directly by an RSOO could be set and managed, but some key issues are:

- Those States with limited aviation activity would not be able to generate significant contributions to the RSOO pool of funds.
- Member States, acting as a group, might have difficulty agreeing on the levels of user charges because of their national policies and economic circumstances.

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<sup>5</sup> D. Brown, T. Berry, S. Welman and E.J. Spear (2014). *CAA International Structures. Report on CAA Findings prepared by the Center for Advanced System Development*. Report prepared by the MITRE Corporation for the Federal Aviation Administration, Project 0214PB01-IF. October 2014.

<sup>6</sup> Refer, for example, to DP-5: *Programme Budget and Funding – 2017/2018* presented by ICAO at the 26<sup>th</sup> Steering Committee Meeting at Kathmandu, 9-10 January 2018.

<sup>7</sup> *Report on the ICAO Evaluation of Regional Safety Oversight Organizations*, by Roger Lambo, Consultant, Air Navigation Bureau, ICAO, November 2017.

<sup>8</sup> See, for example, Clegg, S. 2011. *Funding of Regional Safety Oversight Organizations*. Civil Aviation Authority New Zealand, 27 October 2011.



- Opposition to charges could arise from national Governments and industry based on concerns about the effectiveness of the RSOO, its relevance to their needs, and the efficiency of its management.
- Variations in traffic levels would open the RSOO to the risk that its income is not sufficient to sustain its activities on a regular basis.

There are ways in which these concerns can be addressed. For example, two of the States with lower levels of aviation activity in South Asia also rely heavily on their tourism sectors. The need to maintain a good reputation for safety is critical to the continued success of tourism, particularly since both of these States target high-yield visitors. Accordingly, it would be appropriate for aviation safety oversight to be funded from levies on visitors.

The answer to objections about how funds are managed by an RSOO lies in having transparent management systems and processes for strategic planning, controlling costs, ensuring quality of service and managing risks. What is more, the basis for setting fees and charges requires a sound understanding of costs and what drives them. ICAO Doc 9734 Part B contains appropriate guidance. Possibly, the establishment of management systems is a matter that might be raised with donor agencies and industry partners.

It also would be of assistance to demonstrate on an ongoing basis how each State benefits from its participation in the RSOO. It is important that the activities and priorities of States and an RSOO be aligned so that States are able to reduce their own costs and to derive benefits from economies of scale at the regional level.

Maintaining a balance in the RSOO Trust Account that provides an adequate buffer against unexpected downturns in income derived from user charges would be a prudent measure, as would be having regular reviews of the level of fees and charges.

The critical challenges in establishing independent funding for an RSOO thus lie with reaching agreement amongst the Member States. Defining the scope of activities lies at the heart of this, and the Scenarios proposed in this Feasibility Study, plus embracing the principle that some costs of the RSOO would be attributable to a sub-set of States, allow room for flexibility.

In addition, the RSOO would need to be established with an appropriate legal identity before any consideration could be given to allowing it to levy its own charges on passengers and/or air navigation services. In any case, it is more likely that approval for the RSOO to be vested with powers to levy its own user charges will become an achievable objective when Governments in SA are comfortable with allowing their own national safety oversight entities independence in setting their own levels of charges, retaining the income derived therefrom, and for the CAAs deciding how the funds will be spent. Accordingly, the financing plan for RSOO should consider the possibility of user charges, but with initial endowments continuing to come from State contributions.

## 5.7 Cost-Benefit Analyses of COSCAP-SA

### 5.7.1 Methodology

The approach adopted in CBAs of RSOOs in the past has been to apply the accounting framework of CBA to compare the costs of providing training, technical assistance, and developing regulations as well as manuals and guidance materials. In other words, the analysis gave answers to the question “have the Member States been made better off as a result of their participation?”

This method was used to evaluate COSCAP-SA in 2004 and its conclusions are summarised below<sup>9</sup>. Notably, the same approach was adopted in 2009 by the Regional Safety Oversight Cooperation System (SRVSOP) on behalf of its 12 Member States from South and Central America. The SRVSOP Study was updated in 2015.<sup>10</sup>

Accordingly, the Study team followed the methodology applied by COSCAP-SA and SRVSOP. A basic assumption is that, in the absence of the RSOO, the Member States would have had to achieve the same outcomes on their own initiatives. So, for example, if the RSOO did not offer a training event then the MS would have had to arrange the training some other way. If the RSOO provides Technical Assistance, the alternative for the State would have been to engage an ICAO-appointed specialist or to obtain one on the open market. Thus, the net benefits amount to the savings that the RSOO provides each Member State for performing a defined set of tasks.

The inputs required to perform a CBA on this basis include details about the activities of the RSOO as well as valuations on the activities. In attempting to carry out a retrospective evaluation of COSCAP-SA for the past two decades, the Study team found that it was not able to access the data required to update the COSCAP-SA 2004 Study. For example, detailed information about the number of training courses, the number of attendees by CAA and by industry, duration of the course, and the place where the courses were held was available up until 2008.

On that basis it was possible to extrapolate the training benefits of COSCAP-SA to cover Phases I and II, but not for later periods. As for the other categories of benefits, there was insufficient information to enable a replication of the 2004 CBA. Instead, the Study team quantified what was possible, it presents an analysis for a “typical” year during Phase IV, and it summarises information about COSCAP-SA’s achievement of the goals that were set for it. Collectively, this information presents a strong case for continuation for the regional cooperation initiative. It also indicates a need to upgrade management systems.

Building on these approaches, CBAs have been carried out on the options identified in the various Scenarios for an RSOO-SA. Summary information about these analyses is presented below in the discussion about each Scenario. A more detailed account of the cost-benefit analyses (CBAs) carried out by the Study team is provided in Section 12.

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<sup>9</sup> As reported in DP-3 “Cost versus Benefit”, 13<sup>th</sup> Steering Committee Meeting, COSCAP-SA, New Delhi, India, 29 November – 1 December 2004.

<sup>10</sup> SRVSOP 2015. *Report on the Update to the Cost-Benefit Analysis of the Regional Safety Oversight System*.

## 5.7.2 Evaluation of COSCAP-SA – Phases I to IV

### 5.7.2.1 Phases I and II

The CBA presented in DP-3 at the 13<sup>th</sup> Steering Committee Meeting calculated that the total contributions of the Member States amounted to \$1.55 million, whereas it was estimated that they received \$6.7 million in measurable savings. That is, total benefits were 4.32 times the costs actually incurred, and each Member State could be shown to have gained from its participation in COSCAP-SA. Notably, 72% of the estimated benefits accrued from Training. Another 16% of benefits arose from the production of manuals and guidance material, 5% from the development of regulations and 7% from Technical Assistance and On-the-Job Training.

In addition, the following qualitative benefits were identified:

- Availability of high quality expertise familiar with the sub-region to respond quickly to safety oversight concerns.
- Network with other State and Organisations and greater harmonization and coordination.
- Production of quality documents, manuals, etc.

This CBA appears to have been updated. DP-2 “Progress Review” presented to the 17<sup>th</sup> Meeting of the Steering Committee held at Bangkok, 6-8 November 2007 Stated that:

*“From the statistics of benefit versus cost for each State, it was easily discernible that all States have gained from the Programme though in varying degree. The average benefit received by the States is 4.74 times the contribution.”*

For the purpose of this Feasibility Study, an attempt was made to update the earlier CBA to the end of Phase II. Insufficient information was available to recalculate the benefits arising from the production of manuals and guidance materials, the preparation of regulations, and technical assistance. However, it was possible to update the benefits from the training programme. This is likely to be an under-estimate because we continued to use the same valuation of training days that was used in 2004. The total amount of contributions by the Member States was \$2.6 million for Phases I and II, whereas the estimated benefits of the training provided amount to \$8 million. This implied a Benefit-Cost ratio of 3.0. Thus, just on the training programme alone, the Member States were more than recovering the subscription costs. Note that approximately half of the training in-country was for the benefit of industry.

### 5.7.2.2 Phase III

It was possible to calculate a “partial” Benefit/Cost ratio for each Member State for the first year of Phase III, using the same parameters as previously. A total of 205 days of training were provided abroad to the Member States and 1,411 days of training were provided in-country in 2008. The value placed on this is \$625,900. In addition, the Programme’s Technical Experts in the fields of Air Traffic Services, Flight Operations, Airworthiness and Aerodromes spent 181 days in-country on Technical Assistance Missions.<sup>11</sup> This work included reviewing Regulations or Implementing Standards, Inspector Training including OJT, Review of States Guidance Material, Participation at Air Operator Certification, Conducting Surveillance activities etc. in addition to provision of expert advices on various technical and administrative matters.

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<sup>11</sup> 18<sup>th</sup> Steering Committee Meeting, Bangkok, 17-19 February 2009, DP-1: “Review of Progress”.

This was valued, as before, at US\$600 per day, to give a total valuation of \$108,600. However, the reported data did not disclose how much of the Experts' time at the Programme Headquarters in Sri Lanka was devoted to Technical Assistance. An amount of \$50,000 was added to the total to account for this.

Bearing in mind that we continued to value of benefits placed on training and technical assistance as per those prevailing in 2004 and therefore would be under-valuing these benefits. Even so, a comparison of the benefits from these two COSCAP-SA activities alone against the contributions provided by the Member States in 2008 indicates that the savings were 2.4 times the amounts paid into the Trust Fund. Note that the Experts spent another 149 days attending training events and seminars and other Programme-related activities.

In addition, COSCAP-SA revised five of its previously issued guidance materials and the following new manuals<sup>12</sup>:

- Generic State Safety Programme (SAAP-375)
- Model Regulations on Foreign Air Operator Certificate Validation (SAAP-400)
- Manual of Procedures for Foreign Air Operator Certificate Validation (SAAP-425)
- Model Regulations on Dangerous Goods (SAAP-450)
- Dangerous Goods Inspector Manual (SAAP-475)
- Manual of Procedures for Approved Training Organizations (SAAP-500)

The CBA carried out on COSCAP-SA in 2004 placed a value on each document of between \$15,000 and \$30,000 for each Member State, on the basis that this is what it would have cost them to prepare the same material independently. If it is assumed that the value of this set of manuals to each Member State is \$135,000, then the total benefit would increase by \$945,00 and the Benefit/Cost ratio would rise to 5.4.

Thus, it may be concluded that COSCAP-SA continued in Phase III with a flow of tangible benefits to the Member States that outweighed the cost of their contributions by a factor of 2.4, not including other activities of the Programme that were difficult to quantify but which were nevertheless of value.

#### 5.7.2.3 Phase IV

The budget approved for Phase IV at the 22<sup>nd</sup> COSCAP-SA Steering Committee Meeting planned on the basis that the Member States would contribute \$2.5 million over the coming five-year period. Actual contributions to the Trust Fund were slightly higher, at \$2.8 million.

This does not include the costs incurred by the Member States to participate in COSCAP-SA including:

- Expenses incurred by the State hosting the COSCAP-SA headquarters.
- Attendance at meetings, training events, workshops and seminars.

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<sup>12</sup> 18<sup>th</sup> Steering Committee Meeting, Bangkok, 17-19 February 2009, DP-4 "Adoption of the COSCAP Revised Guidance Materials".

- Specialists provided to support the Technical Assistance programme under the auspices of the South Asia Capacity Building Matrix (SACBM).
- Regional harmonization of regulations through SARI, including the expenses borne by MS.
- Additional resources provided by donors and industry partners (e.g. air travel for COSCAP-SA experts provided free of charge by the airlines).

The activities performed by the COSCAP-SA Programme in Phase IV can be classified under the headings:

- Meetings, Conferences and Documentation
- Regional Safety Meetings
- Courses, Seminars and Workshops
- Audit Training and Preparations
- Technical Assistance
- Harmonisation of Regulations

The Steering Committee, at its successive meetings, was presented with information about the outcomes of COSCAP-SA's work programme. In many cases this was not provided in a statistical format that would facilitate a CBA for Phase IV. The approach taken therefore was to carry out an analysis focused as much as possible on one year – 2018. This can be interpreted as an indicator of the Programme Benefits for Phase IV as a whole, but it also provides the necessary foundation for a CBA of the options for an RSOO-SA Level 2. The method followed remains consistent with the earlier CBA analyses, but the valuations have been updated to reflect current market conditions.

One matter that warrants specific comment is the SACBM which has been under development with the aim to deliver efficiency and effectiveness to the maintenance of a regional pool of qualified inspectors/officers in flight operations, airworthiness, personnel licensing, cabin safety, aerodromes and air navigation services.

At this early stage it is necessary to rely on the Study team's expert judgements about the costs and benefits of providing technical expertise in this manner. However, as experience grows it is recommended that COSCAP-SA/RSOO-SA in coordination with the Member States undertake a thorough analysis of the costs and benefits involved as a guide to future decisions about the scope of the SACBM.

The SACBM is already proving to be a success, so it would be reasonable to predict that the activity level planned for 2018 (48 days) would grow to around 200 days per year. Depending upon the levels of expertise involved, the value to be placed on the SACBM activities would lie close to \$100,000 a year.

The total contributions made by Member States to COSCAP-SA so far in 2018 amounted to \$717,555. The table below summarises the benefits, both measurable in monetary terms, and intangible by nature. The measurable benefits amount to \$1.44 million and thus the Benefit/Cost ratio for the Member States is 2.0. That is, the Member States have so far been able to save twice the amount of the contributions to COSCAP-SA as a result of the savings they would have had to make to achieve the same results. But the items that are not possible to put into reasonable monetary valuations – the "qualitative benefits" are of far greater real value.

Table 5-6 : Summary of Benefits to States of COSCAP-SA

Activity	Savings Made Possible by COSCAP-SA	Qualitative Valuation
Meetings, Conferences and Documentation	Not measurable	<p>a) The Steering Committee Meetings and other events organised under the auspices of COSCAP-SA enable the leaders in aviation safety to share common concerns, pursue common solutions, share resources.</p> <p>b) COSCAP-SA developed and maintains manuals and guidance material for the benefit of the MS, and this is an asset that would be very costly to replicate.</p>
Regional Safety Meetings	Not measurable	COSCAP-SA actively implements ICAO plans for aviation safety and has an active role in coordinating the NAST and SARAST and its engagement with APRAST.
Courses, Seminars and Workshops	\$1 million	COSCAP-SA has been heavily engaged in training activities from the outset. The MS advised the Study team that this was a highly-valued activity that should be continued. Some of these activities have been supported by EU-SA-APP.
Audit Training and Preparations	\$90,000	<p>a) Though many of the MS in South Asia already have LEIs above the global average, there are some States that have yet to achieve this benchmark;</p> <p>b) It must be remembered that the target of reaching the global average should be kept in proportion – the goal should be to attain 100% LEI.</p>
Technical Assistance	\$350,000	At this early stage of the development of the SACBM it is difficult to assess its full benefits, some of which are not directly measurable and can be counted in terms of improved career opportunities and the foundation for building even stronger regional cooperative programmes.
Harmonisation of Regulations and Procedures	Currently managed and funded under SARI	These provide the foundation for an RSOO operating successfully at Level 2. There are tangible benefits in terms of achieving economies of scale in developing regulations, procedures and related documentation as well as in improving the effectiveness of training.

## **6. COSCAP-SA CONTRIBUTION TO EFFECTIVENESS OF SA STATES IN TERMS OF ICAO COMPLIANCE**

### **6.1 Approach**

Over a duration of 18 years the major contributions of COSCAP-SA to Member State levels of Effective Implementation (EI) can be considered as inputs and outcomes. In some cases, these are closely combined, indeed almost inseparable.

In relation to Inputs, the major example is a large amount of diverse, formal training of the staff of CAAs, and to a lesser degree of industry staff. The effort to provide this formal training via training courses has been a substantial part of the overall work effort of COSCAP-SA during its history. Although this training related initially only to the subjects of Flight Operations and Airworthiness, with the expansion of the coverage of COSCAP subjects, this training has also expanded to address the majority of aviation safety related subjects.

Additionally, COSCAP-SA has provided a variety of non-formal training opportunities including mentoring, guidance, 'on-the-job' training and training exchanges. The provision by States of 'interns' to work in the COSCAP office would also provide an effective training opportunity, although this activity has not been undertaken.

Allied with training as an input has been the provision of documentation, particularly in relation to Model Regulations and technical tools and guidance materials. The use of model documents and descriptive processes and procedures has directly related to the achievements of States against CE2 (Specific Operating Regulations) and CE5 (Technical guidance, tools and the provision of safety-critical information).

While training itself is the input, the outcome of such training relates directly to the various MS audit results for CE 4 (Technical personnel Qualification and Training) and indirectly to CEs 6 (Licensing, Certification, Authorisation and Approval Obligations), CE 7 (Surveillance Obligations) and 8 (Resolution of Safety Concerns).

These outcomes show additional advantages of standardisation and networking/familiarisation as the use by various States of model regulations and documents inevitably provides a standardised or harmonised result.

It will be noted that all of these outcomes are Level 1 activities because the lack of acceptance by ICAO of any COSCAP Level 2 activities has prevented States gaining these benefits.

## **7. SOUTH ASIA STATE-SPECIFIC AVIATION SAFETY, INSTITUTIONAL CHALLENGES AND DEVELOPMENT**

As per the TORs for the Feasibility Study, the Study team of experts carried out 1-2 day missions to seven SA States (except Afghanistan) to meet with the CAAs, MoTs and aviation industry representatives.. Summaries of the meetings held with the CAA delegations were sent to the DGs and their concurrence sought. All of the States provided the Study team with their DG's concurrence to the summary report of the meetings or provided slight amendments which were accepted and incorporated into the summary reports below . It can therefore be stated with confidence that the summary reports reflect the views of each State CAA. Meetings were also held with the CTA of COSCAP-SA and the SARI Coordinator in which the role and recent achievements of each organisation were discussed. This information was utilised in the development of scenarios detailed in the Study Report

Regrettably, the Study team was largely unable to meet with the majority of State Ministries to confirm their respective positions. However, most of the CAAs confirmed that the views expressed by them would most likely be agreed to by their Ministry.

### **7.1 Afghanistan**

Due to ongoing security concerns and lack of communications, the Feasibility Study team was unable to travel to Afghanistan.

Although the Questionnaire on aviation safety oversight, COSCAP-SA and evolution to a RSOO was sent to the CAA of Afghanistan, along with several reminders, no reply was received. Hence, the Feasibility Study, while in principle encompassing Afghanistan as a SA State and a SAARC member, could neither obtain data on Afghanistan aviation safety oversight nor on the views of the CAA or MOT of Afghanistan on COSCAP-SA and its possible evolution.

No ICAO USOAP audit has taken place in Afghanistan, thus reliable data on aviation safety oversight is not available.

### **7.2 Bangladesh**

#### **7.2.1 Major aviation safety oversight issues identified**

The major challenge is the availability of sufficient qualified manpower, both in the regulatory and service provider entities, to cater for the growth in the aviation sector.

Although the new organogram may reflect the capability to hire additional staff, the availability of suitable applicants (at Civil Service Salary levels) is not guaranteed.

Additionally, separation of the Regulatory and the Service Provider functions is required. The separation of the AIG function has commenced but has a probable 3-4 year timeframe.

The Audit Areas most in need of support are personnel licensing, airworthiness, ANS and AGA.



The CAAB is in FAA category 2 but plans to receive category 1 in time for the receipt of Biman Bangladesh's first Boeing 787 towards the end of 2018. It is planning to utilize this equipment for a new route Dhaka-Manchester-New York.

#### 7.2.2 Prioritisation of effort to address low EI

*(Taking into account both available resources and lack of necessary resources)*

The CAA Stated that their first priority was to make progress on the State Safety Programme Framework. The CAA did not feel it had the technical capability in this area and external assistance is being sought through ICAO TCB.

#### 7.2.3 CAAB views on evolution of COSCAP-SA and a RSOO

##### 7.2.3.1 General view on history/recent history of COSCAP- SA

The CAAB felt that initially COSCAP-SA had been effective (1998 – 2010) but this had decreased in the period 2010 to 2015 and had only recently improved. Even with this improvement, however, there was insufficient support to the CAAB.

##### 7.2.3.2 Present Level 1 activities to be continued

The CAAB felt that it was critical that training activities continue and would prefer that these increased.

##### 7.2.3.3 Future Level 2 activities to assist CAA, including prioritisation

The CAAB strongly supported the formation of an organisation (COSCAP-SA/RSOO) to provide additional Level 2 activities.

The CAAB would like the organisation to carry out a variety of tasks on their behalf including:

- Drafting and harmonizing regulations.
- Developing guidance material, procedures and inspector handbooks.
- Supporting the development and implementation of SSP.
- Carrying out tasks in support of certification and issuance of approvals.
- Carrying out tasks in support of surveillance.

The CAAB is unsure if it has the requisite legal basis to delegate authority to an expert provided by RSOO-SA to perform operational Level 2 tasks in Bangladesh.

#### 7.2.4 Cost-benefit of COSCAP-SA and RSOO and financing

The CAAB felt that a Level 2 RSOO would help to reduce its cost on preparing necessary regulations and a harmonized regulation would eventually reduce the cost of compliance among the various stake holders.

The CAAB's approved budget is funded entirely from user charges levied and, which are retained by the CAAB in its Trust Fund. It includes provision for its contribution to COSCAP-SA, training and engagement of foreign experts.

Salaries and conditions of employment for permanent staff are determined by the Ministry of Establishment. Specialists however can be recruited on consulting contracts on terms decided by the Chairman of the CAAB – making it possible for the CAAB to engage experts provided by RSOO-SA.

#### 7.2.5 Funding

The CAAB gave an assurance that the funding currently allocated to COSCAP-SA would be available in the future. The CAAB Stated that an increase in costs of participation would be considered in the context of the quality of the service provided.

#### 7.2.6 MOT views on evolution of COSCAP-SA to a RSOO

Ministry views were not available at the time of the team visit and a meeting with MOT was not possible. Responses from MOT to the questionnaire are awaited.

The CAAB felt that the Ministry would support its views.

### 7.3 Bhutan

#### 7.3.1 Major aviation safety oversight issues identified

The major challenges confronting Bhutan are the lack of technical expertise/knowledge, inability to implement the training programme, lack of an adequate budget, difficulties in retaining qualified safety inspectors, conflicts of interest between CAA and operators, and no AIG. The BCAA requires continuing support in all areas.

#### 7.3.2 Prioritisation of effort to address low EI

Recent implementation of the new Civil Aviation Act provides legal and operational separation of the regulator and the airport. The new Act authorizes the Board of the BCAA to approve its Regulations. The delay in establishing the Board is holding up approval of amendments to the CARs prepared by the CAA. The Minister is aware of the importance of this matter and gave his assurance that prompt action would be taken. Note that later information provided by Bhutan indicated that, subsequent to the team's visit the members of the board of Directors were nominated and the first board meeting will take place around the second week of October 2018.

Whilst the BCAA presented a positive overall image of improvement of their capacity and ability for oversight compared to their last USOAP audit in 2006, a closer review of the various CE/Areas does reveal that there are some inherent constraints in achieving a high EI in the next ICVM scheduled for August 2018, particularly in the areas of LEG, SSP, AIG, AGA, ANS etc. Note that this ICVM has now been completed however the official ICVM report has not yet been received by Bhutan. The preliminary reports of ICVM carried out only on the CE area of AIG, ORG, LEG and ANS provides a State EI of around 55%. Bhutan felt that if the audit had included the CE areas of PEL, AIR, and OPS the State EI % would be more than 65%.

The training situation in BCAA is critical because there is a lack of technical expertise in all areas, there is a lack of adequate technical training, and in the current organizational environment, it is not possible to give the experts the required and mandatory training.

There are no formal arrangements in place for AIG. The Minister understands that an MOU with another MS may be a solution given the low activity in Bhutan and also intends to pursue the matter as a high priority.

### 7.3.3 BCAA views on evolution of COSCAP-SA to a RSOO

The BCAA views in regard to present COSCAP activities and a future RSOO are:

#### 7.3.3.1 General view on history/recent history of COSCAP- SA

Bhutan really appreciates the training support received from the EU-APP Project.

Regarding the COSCAP itself, although Bhutan had high expectation towards resolving the USOAP PQ's and training of the BCAA inspector, Bhutan has received few in country trainings on SMS and auditing techniques delivered by the CTA.

Nevertheless, the BCAA recognizes the value of the COSCAP-SA to a small State such as Bhutan that lacks the necessary financial and human resources.

#### 7.3.3.2 Present Level 1 activities to be continued

The BCAA would like all the activities of Level 1 to be continued. In addition, BCAA would like to see the training activity increased. The BCAA valued the concept of the Capacity Enhancement Matrix.

#### 7.3.3.3 Future Level 2 activities to assist CAA including prioritisation

The BCAA Stated that it is open to the COSCAP-SA providing considerable actual operational assistance to the CAAs with Level 2 RSOO staff, and undertaking actual State oversight tasks. The BCAA requested that OJT and national inspector familiarization be added under the Level 2 tasks.

The BCAA would assign/delegate tasks to an RSOO in OPS, AW, PEL and specific tasks. The BCAA is open to standardisation in all areas. The BCAA needs expertise in AIG and continued training in developing regulations and procedures and surveillance.

### 7.3.4 Funding

The BCAA would be prepared to make a case for increased funding to the Ministry of Finance if justified.

### 7.3.5 Additional Issues

Bhutan lacks adequate financial and human resources to equip its CAA to undertake the necessary tasks. The Royal Civil Service Commission has overview control of all staffing issues. These rules constrain the training and competence of BCAA Technical Staff.

An RSOO would offer attractive and financially rewarding career opportunities for Regional Experts and thus improve the BCAA's capability to retain qualified staff.

### 7.3.6 MOT views on evolution of COSCAP-SA to a RSOO

The Minister had previous knowledge of COSCAP-SA and was interested in the extension to Level 2 activities. He was generally supportive of any activity that assisted the CAA. The Minister was aware of the commitments made under the Beijing Declaration.

## 7.4 India

### 7.4.1 Major aviation safety oversight issues identified

The low EI in the recent audit was mostly due to the fact that the ATCO (Air Traffic Controllers) had not been licensed by DGCA India. The ATCOs were certified and worked for AAI (Airports Authority of India) an autonomous Government corporate entity.

DGCA India commented that there was progress since the USOAP Audit was made; DGCA is in the process of licensing of ATCOs to address the observation of ICAO.

### 7.4.2 Prioritisation of effort to address low EI

An assessment to allow prioritisation of effort takes into account both available technical resources and lack of necessary resources and was Stated by DGCA India as:

- Rules for ATCOs to be revised and published by September 2018.
- Staff complement of around 25 persons for licensing of ATCOs.
- Roadmap envisages completion of licensing of existing ATCOs by March 2019.

### 7.4.3 DGCA's views on evolution of COSCAP-SA to a RSOO

#### 7.4.3.1 General view on history/recent history of COSCAP- SA

The Director General stated:

COSCAP-SA is not a "safety oversight" organization – its role has been primarily for training, capacity building and technical assistance

At no stage would India accept that its safety oversight would be performed by an RSOO

India, is prepared to assist its smaller neighbours with such Level 2 tasks

The Director General stated clearly that the DGCA is not just about safety but also works towards the growth of civil aviation in the country based on the policies set out by the Government. Therefore, a separation from the Ministry to become an independent organization is not planned at present.

#### 7.4.3.2 Present Level 1 activities to be continued

DGCA made it clear that it had greatest interest in continuation of Level 1 tasks by COSCAP-SA, such as training, capacity building and technical assistance.

#### 7.4.3.3 Future Level 2 activities to assist DGCA including prioritisation

DGCA immediate priorities are focus on training, capacity building and technical assistance in ANS and AGA.

India would not be prepared to delegate to RSOO-SA; it would rather hire expertise if needed to provide international experience but have total access to that resource.

India is not opposed to the other States pursuing other options

They also stated that if Level 2 activities led to increased capabilities for the organisation maybe they would use them but did not see any case for an RSOO to undertake tasks of the DGCA on its behalf. The DG stated that he saw where some other States may wish to have these Level 2 activities and at the SCM of COSCAP-SA, India would support this increase in role of COSCAP-SA.

DGCA would reserve its decision if there was an additional cost for this increased activity but would be willing to support it 'in kind' by the provision of their staff to assist.

#### 7.4.4 Funding

India has adequate financial resources to meet its needs.

A strong point was made that there is a limit to what India would be prepared to contribute in terms of human resources – whose costs would need to be compensated.

The concept of levying a user charge on passengers or flights is not currently under consideration, although there is a general trend in the Government for agencies to fund their own activities.

#### 7.4.5 MOT views on evolution of COSCAP-SA to a RSOO

The Ministry of Civil Aviation in India was not available for discussions and a response to the Questionnaire was not received.

### 7.5 Maldives

#### 7.5.1 Major aviation safety oversight issues identified

Major issues relate to 'soft infrastructure' such as HR numbers and training levels.

Many USOAP findings were unresolved, mainly due to lack of qualified personnel. This is particularly apparent in the ANS/AD section and flight operations relating to potential helicopter operations.

The MCAA has no qualified persons to approve or oversee a manufacturing organisation required for the manufacture of parts for legacy Twin Otter -300 series.

The MCAA did not specify the assistance required for AIG. However, in the meeting with industry it was indicated that the completion of Accident Reports took a long time, and so Operators were unable to respond to these effectively. Although accident investigation is not the direct responsibility of the CAA, it still counts against the State's EI result.

#### 7.5.2 Prioritisation of effort to address low EI

The MCAA did acknowledge the high priority and need for greater progress on SSP and has allocated considerable resources to achieve it.

It is recognised that EI is very low for ANS and AIG.

### 7.5.3 MCAA views on evolution of COSCAP-a RSOO

#### 7.5.3.1 General view on history/recent history of COSCAP- SA

The MCAA stated that 'something needs to change in COSCAP-SA. Maybe States have outgrown COSCAP?

Group work at SARI is disappointing; it is ten years old and still has thorny problems.

MCAA is very apprehensive about COSCAP after it worked very well for some years but was very unreliable at other times when ICAO failed to provide a CTA or important specific subject matter Experts for very long periods.

For future support, a mechanism is required in order to provide sustainability and reliability to incorporate COSCAP in State plans.

#### 7.5.3.2 Present Level 1 activities to be continued

Everything involving training is needed.

#### 7.5.3.3 Future Level 2 activities to assist CAA including prioritisation

The MCAA agrees initially to Option 1 (Continue COSCAP activities and limited operational support to assist CAA) followed by transition to Option 2 (Continue COSCAP activities and provide limited operational support by Level 2 RSOO with STEs undertaking State oversight tasks). Alternatively, commencement directly at Option 2 level would also be acceptable.

Agree to advisory and consultative assistance, Regulatory assistance and limited oversight assistance. Agree also to ANS and AIG assistance

The MCAA has difficulties filling Airworthiness, Operations, ANS and CNS positions and these may also require Level 2 assistance.

### 7.5.4 Funding

The Civil Aviation Authority Act (2/2012) does contain provision for part of the Airport Service Charge (US\$2) to be allocated to the Civil Aviation Authority. The CAA advised that it is allocated US\$2 out of the US\$25 fee and these funds go to the Civil Aviation Trust Fund. Any unused funds are resumed by Government at the end of each Financial Year.

Not all of the funds have gone to the CAA – a situation that the CAA believes the Attorney General will attend to.

### 7.5.5 MOT views on evolution of COSCAP-SA to a RSOO

The CAA believes that the Board of Directors will support its views in relation to evolution of COSCAP to an RSOO.

## 7.6 Nepal

### 7.6.1 Major aviation safety oversight issues identified

A distinct separation of the Regulatory and the Service Provider functions is required to improve safety oversight. It appears that many of the processes of the CAAN safety oversight system are incomplete.

The CAAN continues to face problems on recruitment and retention of skilled technical expertise, especially in OPS and AIR. There is a shortage of qualified oversight inspectors in OPS and AIR. A globally common challenge to the continuing effectiveness of the CAAN is the lack of financial resources.

The CAAN does not follow Doc 8335 for validation of Foreign AOCs. There is no document validation, but rather direct inspection of home base required for operating permit. Ramp inspections are conducted.

A Division in the Ministry is responsible for AIG and safety oversight of MET is performed by another ministry.

There are major outstanding PQs related to the process of aerodrome certification.

The areas most in need of support are ANS, OPS, AGA, and AIG.

### 7.6.2 Prioritisation of effort to address low EI

*(Taking into account both available resources and lack of necessary resources)*

The CAAN believes that they have already addressed most of their outstanding PQs, but ICAO wants to review actual implementation on-site and will not remove the PQs based on an off-site evaluation.

### 7.6.3 CAAN views on evolution of COSCAP-SA to a RSOO

#### 7.6.3.1 Present Level 1 activities to be continued

The CAAN felt that it was critical that training activities continue and would prefer that these increased.

#### 7.6.3.2 Future Level 2 activities to assist CAA including prioritisation

The CAAN strongly supported the formation of an organisation (COSCAP-SA/RSOO) to provide additional Level 2 activities.

The CAAN expressed a preference for an organisation led by an international CTA, supported by a small number of full-time employed Regional Experts in various disciplines. They would welcome support on Level 2 tasks in OPS, ANS, AGA and AIG.

### 7.6.4 Funding

The CAAN understood that this may become more costly than present COSCAP organisation, and confirmed that if this was adequately justified, they were prepared to cover the additional cost.

#### 7.6.5 MCTC views on evolution of COSCAP-SA to a RSOO

The Secretary for Aviation, Ministry of Culture, Tourism and Civil Aviation acknowledged the importance of aviation and tourism and indicated that the Government of Nepal was enabling the CAAN to regulate with minimum interference.

Responses to the questionnaire from MCTC are awaited. CAA believes however that the Ministry will agree with the CAAN's views.

### 7.7 Pakistan

#### 7.7.1 Major aviation safety oversight issues identified

- Attracting and retaining experienced, trained and skilful flight operations inspectors.
- Deficiency of training to develop capacity and capability of inspectors in various Regulatory functions so that they may be able to cope with modern concepts of safety oversight/surveillance.
- Inspector training in all areas needed – preferably in-house.
- Enforcement process needs to be reviewed.

#### 7.7.2 Prioritisation of effort to address low EI

- Necessary legislation processes underway to separate AIG from the PCAA. Right now, the reporting is direct to Ministry and also their office is located near to Ministry Office in Islamabad.
- A new policy document has been issued that indicates separation of Service Provider and Regulator will go ahead. The process of separation has not yet commenced
- Continued development of the SSP.
- Training in relation to regulatory role of safety inspectors.
- For new requirements, training of individuals to bring skills/knowledge back as a 'train-the-trainer' role.

#### 7.7.3 PCAA views on evolution of COSCAP-SA to a RSOO

##### 7.7.3.1 General view on history/recent history of COSCAP- SA

PCAA stated that COSCAP was good initially but lost strength and has only started to regain that in the last two years. Pakistan has mainly taken a training benefit from it.

##### 7.7.3.2 Present Level 1 activities to be continued

All Level 1 activities to be undertaken and PCAA wants to obtain these services – particularly training of Inspectors, development of guidance material, rulemaking and harmonization.

##### 7.7.3.3 Future Level 2 activities to assist CAA including prioritisation

The PCAA sees the need for COSCAP-SA to continue and that movement to Level 2 should be minimal for Pakistan.

The PCAA specifically stated that while they did not need Level 2 activities they understood that other States in the Region did need it and that they will support it by sharing technical resources on availability basis.



The PCAA agreed that they could accept limited Level 2 assistance in the areas of AIG and Legal for development of regulations and improvement of Effective Implementation (EI) besides skill development.

#### 7.7.4 Funding

Emphasis placed on not increasing the financial contribution of the State as they are contributing for COSCAP-SA.

#### 7.7.5 Additional Issues

The PCAA thinks that Regional Experts have advantages in knowing the issues and understanding the States. It supported an extension of the existing Matrix System i.e. South Asia Capacity Building Matrix (SACBM) to have more Regional Experts available and was willing to participate to provide experts.

#### 7.7.6 MOT views on evolution of COSCAP-SA to a RSOO

A meeting with the Minister responsible for aviation policy from the Government had been requested. However, PCAA informed that the Government is completing its tenure on 31st May, 2018 followed by a caretaker setup (interim setup), hence meeting with the relevant Minister could not be ensured at this stage. It was advised to have meeting with Acting Director General PCAA and they arranged the meeting with Acting DGCAA accordingly. PCAA was of the opinion that the Aviation Division would likely to support their views.

### 7.8 Sri Lanka

#### 7.8.1 Major aviation safety oversight issues identified

Based on the recent ICAO USOAP-CMA audit there is no area of real concern in Sri Lanka. However, it was indicated that recruitment and retention of competent technical expertise poses a significant issue, in particular in OPS, ATM-OPS and PAN-OPS.

The CAASL presently have a lack of experts in several disciplines, such as:

- PANS - Ops Flight procedure designers in the ANSP.
- PANS - Ops Inspectors in the CAASL.
- Training Facilities for ANSP and CAASL.
- Expertise in the Airspace Design.
- Expertise in validation of Flight Procedures.

The CAASL considers their only function without rectification strategy is AIG. Future Level 2 activities should include creation of a Ramp Check Regional Database equivalent to EU SAFA. The CAASL has developed applicable software and is willing to share with an RSOO.

The CAASL needs support and assistance to improve and develop their regulatory regime, particularly in the technical guidance material development and updating.

The CAASL also indicated that they require support in obtaining and maintaining a technical data base management system for effective safety oversight.

### 7.8.2 Prioritisation of effort to address low EI

The CAASL has conducted some structural reforms in 2016 and inducted additional technical staff. In addition, where it was difficult to recruit, they have been using 'retired inspectors' under contract to supplement the staff strength. The CAASL has now an excellent electronic, spreadsheet based system in place to monitor the training of their experts and the necessary training they have to undergo.

### 7.8.3 CAASL views on evolution of COSCAP-SA to a RSOO

#### 7.8.3.1 General view on history/recent history of COSCAP- SA

The CAASL identified that they had been able to derive benefits (cost savings) from its participation in COSCAP-SA, by participating in both in-country and overseas training opportunities, short term expert assistance, and the development of guidance materials.

#### 7.8.3.2 Present Level 1 activities to be continued

The CAASL supports the continuation of the full complement of Level 1 activities, especially in development of Guidance Material and Regulations updating.

#### 7.8.3.3 Future Level 2 activities to assist CAA including prioritisation

The CAASL strongly supports COSCAP-SA's elevation to a RSOO Level 2, including deputizing Level 2 activities, resulting in a report to the CAAs, with executive powers remaining with the CAAs. A Level 2 RSOO would allow the CAA to respond more effectively to increased cost pressures and financial risks in the future.

The CAASL understood that an expanded RSOO would become costlier than the present COSCAP organisation, and confirmed that, if this was adequately justified, they were prepared to make the case to the CAASL Board which had full powers over the CAASL budget.

### 7.8.4 Funding

Although the CAASL does not engage in activity-based costing, it does have comprehensive and well organised financial accounting systems and is able to evaluate its options when it comes to training and other activities.

The CAASL generates an income that is sufficient to cover its costs. The Board of the CAA approves an annual budget within the context of a rolling three-year plan. Should the CAA encounter an unexpected expense during a year, it is possible to seek a variation in the approved budget.

The budget for COSCAP-SA is assured through these arrangements.

### 7.8.5 MOT views on evolution of COSCAP-SA to a RSOO

The Ministry views were not available at the time of the team visit and a meeting with MOT representatives was not possible. The CAASL felt that the Ministry would support its views.

## 8. STAKEHOLDER ANALYSIS AND RESULTS

### 8.1 Basic Assumptions Valid for All Following Scenarios

The following tables provide an overview of the result of the meetings the Feasibility Study team had with the SA States on the basis of the questionnaires distributed to them in advance of the relevant meetings. In all discussions, the existing capabilities of COSCAP- SA Phase IV were taken to be the 'Base Case' or start position for the Feasibility Study.

In some cases, statements are made, or data is provided, relating to previous Phases of COSCAP-SA. The Table below shows the General Tasks requested by the individual States.

Table 8-1 : General Tasks

	Advisory and Consultative	Regulatory	Oversight, Inspection Audit	Enforcement (2)	other
Afghanistan					
Bangladesh	X	X			
Bhutan	X	X	X	X	
India	X				
Maldives	X	X	X (1)		
Nepal	X	X	X	X (1)	
Pakistan	X				
Sri Lanka	X	X	X (1)		

Notes: 1. Indicates limited assistance.

2. Enforcement tasks relating only to investigation and recommendations for action (Level 2)

It should be noted that while a majority of CAA's felt that the types of Level 2 support were appropriate, some States felt that some of these functions, in particular enforcement, rested entirely with the State.

Functional areas of a State Safety Oversight system that many CAAs identified as high priority for Level 2 assistance included:

- Flight Safety (aircraft airworthiness and personnel licensing)
- Aerodromes, including certification thereof
- Air Navigation Services (ATM, PANS- OPS, AIS, CNS, MET, SAR)
- Air Accident Investigation

Many subsets are included with the overview information provided in the Tables above and reference to detailed State level reports; both USOAP and the Feasibility Study data captures are required to fully understand the needs of States. For example, within the Functional Area of Flight Safety and the General Task of Oversight, many CAAs indicated a need for expanded Ramp Checks on Foreign Operators, possibly leading to a centralised regional data base of these inspections.

A majority of the Member States would welcome more support in the field of ANS in any future development of COSCAP-SA. Lately, in COSCAP-SA Phase IV, there has not been much activity on ANS-related issues. The most common requirements were in the areas of training and capacity building.

The Table below shows the functional areas requested by States.

Table 8-2 : Functional Areas

	Flight Safety	Aerodromes	Air Nav Services	Air Accident Investigation	Other
Afghanistan					
Bangladesh	X	X	X	X(1)	
Bhutan	X	X	X	X	
India			X		
Maldives	X	X (1)	X	X	
Nepal	X	X (1)	X	X	
Pakistan				X (1)	
Sri Lanka	X (1)		X	X (1)	

Note1: Indicates limited assistance

The specific tasks of a State Safety Oversight system that many CAAs identified as high priority for Level 2 assistance included:

- Drafting and harmonizing regulations.
- Developing guidance material, procedures and inspector handbooks.
- Supporting the development and implementation of SSP, and its associated operational application of SMS.
- Carrying out tasks in support of certification and issuance of approvals.
- Carrying out tasks in support of surveillance.
- Training.

The Table below shows the specific tasks requested by States:

Table 8-3 : Specific Tasks

	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Drafting and harmonizing regulations		X	X		X (2)	X	X	X
Developing guidance material, procedures and inspector handbooks		X	X		X (2)	X	X	X
Conducting surveillance activities, inspections and audits			X		X (1)			
Supporting development and implementation of SSP		X	X		X (2)	X	X	X
Carrying out tasks in support of surveillance and enforcement		X	X		X (2)	X		X (1)
Carrying out tasks to support issuance of approvals and certification.		X	X		X (1)	X		
Training including OJT.		X	X	X	X	X	X	X (1)
Assisting CAA to prepare for USOAP by doing CAA tasks or overseeing audits or by overseeing CMA		X	X					
Carrying out Post-audit activities in support of the State Corrective Action Plan		X						

Notes: 1. Indicates limited assistance

2. The State is committed to an EASA Regulations approach so applicable only if RSOO is EASA capable.

## **8.2 South Asia Capacity Building Matrix (SACBM)**

A further option for provision of the Level 2 support required by CAAs is by use of the SACBM (the Matrix), which would access regional inspectors, coordinated by the RSOO. Regional inspectors under the SACBM are presently assessed for suitability under specific criteria. To allow such inspectors to undertake Level 2 tasks would require a further assessment of suitability for this role. Such assessment may (or may not) further restrict the available pool of inspectors. However, it is critical that this assessment be undertaken due to the nature of Level 2 tasks versus Level 1 tasks.

The development and implementation of the SACBM is an effective mechanism with the potential for very real advantages to all Member States of COSCAP-SA. It is assessed that the Matrix system is well founded and provides a very good avenue both for assisting States which are lesser developed in a specific discipline and providing international experience to experts within the region. The Matrix is in an early development stage, but it should be continued and increased under Scenario A. Regrettably, in some cases when ICAO USOAP has reviewed this mechanism, the legal basis of the Delegation has been deemed by the auditor to not be acceptable and therefore these activities have not been assessed for audit purposes. See further detail under Legal.

## **8.3 Harmonisation or Standardisation of Regulations**

It is noted however that the High Priority Objectives and Activities for COSCAP-SA Phase V do not include any reference to harmonisation of Member State regulations which was a requirement of COSCAP Phase IV. Harmonisation of regulations and procedures has been undertaken by the South Asia Regional Initiative (SARI) for the last ten years with substantial achievements in Airworthiness and recent commencement in OPS/FCL. As a planning assumption, the possible timeframe for the commencement of a SA-RSOO could be deemed to be 12 – 24 months). Within this timeframe it is possible that present institutional support for SARI may change or decrease. It is therefore important to consider an ongoing role for harmonisation of regulation and procedures under a future RSOO.

Standardisation and harmonisation of regulations, practices and procedures are extremely valuable in a Regional Organisation context when it is likely that Inspectors or other staff will work in a multinational environment. For this reason, there needs to be a continuation of efforts for harmonisation generally but, in particular, in the fields of ANS/AGA/AIG and for some specific States in OPS and AIR.

## **8.4 Human Resources in the SA Region**

Gaining precise data on the human resources situation within the various regulatory authorities is sometimes problematic. This is due to the fluidity of the situation and the fact that the relationship between 'approved establishment' and filled positions is often constantly changing.

The Human Resource difficulties facing SA State safety regulators can generally be classified as both quantitative and qualitative. All States indicated that they faced present and ongoing difficulties with gaining sufficient and sufficiently experienced personnel. This is reflected in the various USOAP-CMA EI results of States under Critical Element 4 'Qualified technical personnel'.

This situation is true of most States generally, although in a minority of cases (Sri Lanka, Pakistan) the situation is prevalent only in specific disciplines, such as ANS. Sometimes it is reflected in very specific areas within a discipline (e.g. helicopters for OPS and AIR ) or even as a short term

requirement to address specific changes within a discipline. This latter circumstance is very true in particular of ANS.

All States spoke of the difficulty of retaining trained and qualified staff in the face of very much stronger remuneration packages available from within the aviation industry or from other regulators, in particular in the Middle East.

The unanimous support by CAAs of the need for a future RSOO to continue or increase Level 1 training activities is a recognition of the ongoing human resource difficulties

The strong growth of the aviation industry in the Region, as covered elsewhere in the report is a serious exacerbating factor in all of these issues.

## 9. EVOLUTION OF COSCAP-SA TO A RSOO: SCENARIO A

The evolutionary Scenarios will be introduced in the following three Chapters 9 to 11, starting with Scenario A in Chapter 9, followed by Scenarios B1-B3 in Chapter 10 and concluding with Scenario C in Chapter 11.

Note please that each Scenario tends to build on the earlier Scenarios addressing lower degrees of change and the later Scenarios providing for more change and possibly more outputs. In this respect, attention is drawn to the time lines suggested for each Scenario as these take into account the time likely involved in adoption of the Scenarios, the on-going EU SA APP project funding etc.

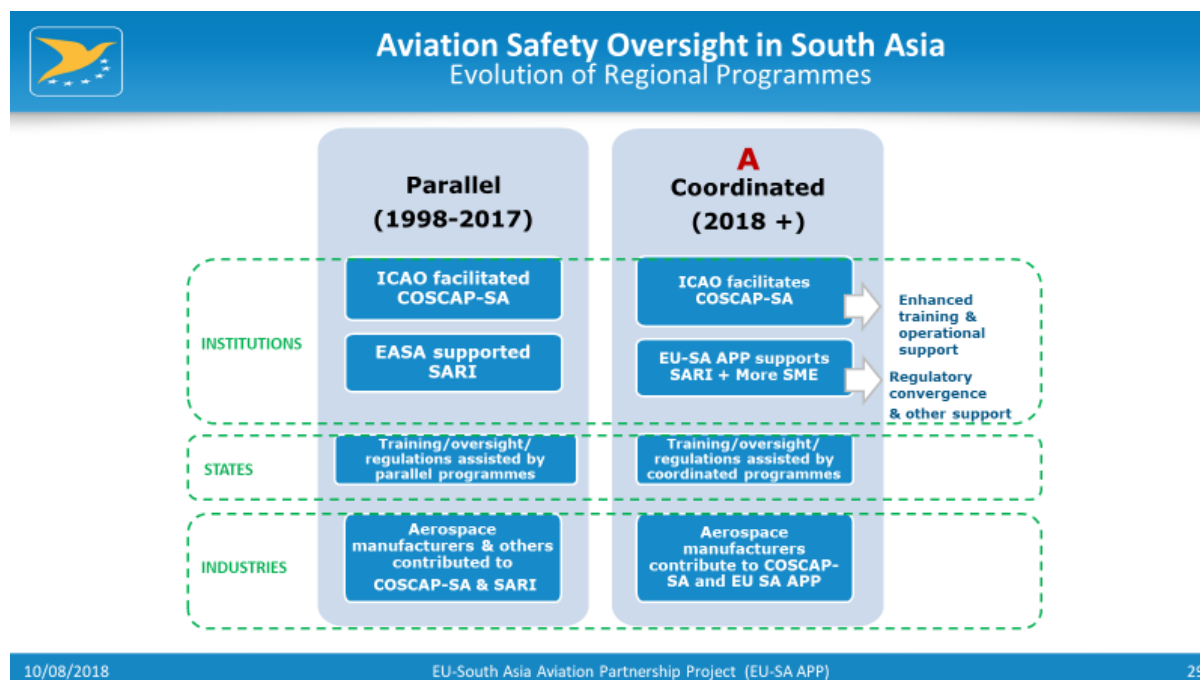
The grouping of the three types of Scenarios (A, B and C) is also significant. A and C are single Scenarios which address very specific identified needs. Conversely the three 'B' Scenarios provide similar outcomes, but address variations in management or structural style to achieve these outcomes.

The intention of the various Scenarios is to give the DGs of the SA States options to consider for both the level of output required and the structure for achieving these outputs in a sustainable manner.

It is also possible that the DGs may consider a 'progression' of Scenarios starting with one of the less difficult or complex but with the intention of then building upon that to the more desired outcome.

### 9.1 Scenario A

Figure 9-1 : Evolution of COSCAP-SA to a RSOO - Scenario A



In Scenario A, COSCAP-SA continues Level 1 activities and provides limited RSOO-Level 2 activities to States. Additionally, COSCAP-SA increases harmonisation activities.



### 9.1.1 Objective

The objective of Scenario A is to give the Directors General of Civil Aviation of the SA States an option which provides some limited Level 2 activities, in addition to the Level 1 activities presently undertaken by COSCAP-SA; and to do this ensuring that possible national contributions may not exceed current contribution to COSCAP-SA (and SARI). Additionally, other sustainable funding which may be viable can be suggested. Scenario A can be considered as the minimalist option involving the least change and the least gain from the RSOO. A critical result however of Scenario A is the mechanism for recognition by ICAO of the Level 2 activities undertaken by specific staff members of the RSOO on behalf of States. Some form of this recognition is required for all Scenarios and provides benefit to Member States equivalent to the amount of Level 2 activity undertaken. Increased effort for harmonisation coordinated by COSCAP is also a substantial benefit.

### 9.1.2 Existing functions to be maintained

The deliberations on existing functions are based on actual COSCAP-SA Phase IV achievements, as these are concrete, realised and form the 'status quo' or base case for all Scenario discussions. Some of the intended outcomes of Phase IV have not been achieved consistently due to a variety of factors including:

- A considerable period in which the Phase IV agreed International Expert Chief Technical Advisor (CTA) role was either not filled or not filled effectively.
- Substantial disruption to the Outcomes and various Annual Work Plan requirements of Phase IV, due to the fact that the International Expert Chief Technical Advisor role was either not filled or not filled effectively.
- The failure to recruit the Airworthiness Expert that was approved for Phase IV.
- The failure to utilise interns to be provided by States.
- The disruption caused by a relocation of the Programme office and CTA during Phase IV.

At times, some of the above factors also intruded during previous Phases, however during Phase IV each of them was apparent at some time.

The achievements towards harmonisation by SARI are also considered as part of the existing functions of the status quo, although these were not always fully coordinated with COSCAP-SA outcomes.

The Study team was provided with a copy of the COSCAP-SA draft Phase V Objectives and Activities only. These seem to be well considered and challenging, although at this time extension of the Programme is awaiting Steering Committee approval. A judgement has not been made by the Feasibility Study team on the likelihood of achievement of all Phase V activities, as details are not available on the resources intended for Phase V or the likelihood of such resources being made available. The Objectives and Activities of COSCAP-SA Phase V can therefore be considered only as aspirational.

All Member States of COSCAP-SA that were visited informed the Study team that it was either important or critical that present Level 1 activities were continued in order to address lack of effective implementation in CE 4. These comments mainly related to training, although in many States this comment also included the development, for example, of guidance material, inspectors' handbooks, and related matters that are intended to address deficiencies in CE 5 in parallel to training outcomes.

The development and implementation of the SACBM is an effective mechanism with the potential for very real advantages to all Member States of COSCAP-SA. It is assessed that the Matrix system is well founded and provides a very good avenue both for assisting States which are lesser developed in a specific discipline and providing international experience to experts within the region. The Matrix is in an early development stage, however it should be continued and increased under Scenario A. Note also previous comments in relation to the lack of ICAO recognition of this work, which is also pertinent here. See further detail under Legal.

A majority of the Member States would welcome more support in the field of ANS in any future development of COSCAP-SA into a RSOO. Lately, in COSCAP-SA Phase IV, there has not been much activity on ANS related issues. The most common requirements were in the areas of training and capacity building, particularly in SAR, AIS and ATM (PANS-OPS). As the outputs of Scenario A will be limited, it is likely that not all of these issues will be addressed for either Level 1 or Level 2 activities.

#### 9.1.3 Functions no longer to be undertaken

The Feasibility Study team was not able to identify any activities that had been undertaken under COSCAP-SA Phase IV which should be discontinued. There are however a considerable number of activities forecast by the Phase IV Programme Document which have not been completed. It is considered that all of the activities that were programmed for Phase IV continue to be applicable and it is therefore recommended that these would be continued under Scenario A, noting also that the COSCAP-SA Phase V outcomes may vary these previous priorities.

#### 9.1.4 Expanded functions including sequential implementation by CE/AREA

The Feasibility Study team identified a large number of Level 2 activities which could be undertaken by an RSOO. Consideration by visited CAAs of their specific need for assistance varied from virtually all critical elements and audit areas (disciplines) to none of these. Between these two extremes there was a great variability of need identified, although the majority of States were interested in substantial Level 2 assistance.

General tasks of a State safety oversight system that many CAA s identified as high priority for Level 2 assistance included:

- Advisory and consultative (although nominally Level 1, this particularly relates to support for Level 2 activities such as surveillance).
- Regulatory (including the review, assessment recommendation for approval of industry submissions for AOC, MRO, ATO etc).
- Oversight (including the inspection and audit of industry activities as part of a State Surveillance Programme).
- Enforcement (in specific areas in particular investigation of identified safety issues and recommendation for action).

In some cases, CAAs specified that Level 2 assistance in these general tasks may be limited to a specific area e.g. ANS.

At this time, no specific sequence of CE/Area for Level 2 assistance has been identified, however it is likely that high priority would be given to ANS as an Audit Area and outcomes that assist with Critical Elements 6, 7 and 8. This is a decision initially for the SC of the new organisation, should this Scenario

be adopted. It is also likely that any RSOO implementation planning that is initiated after a decision is made by the DGs will address the issue of sequential implementation, in particular as it relates to the priorities for hiring/using experts in specific disciplines.

Under Scenario A it is unlikely that all, or even the majority, of support activities requested by several of the States could be provided. It is therefore appropriate to consider which tasks can be considered as 'core tasks' for an RSOO under this specific Scenario.

#### 9.1.5 Core activities vs. activities on demand

The core task areas of Level 2 assistance under this Scenario are those which meet the criteria of:

- Being able to be supplied by a small RSOO.
- Being required by a number of States to provide economies of scale.
- Having a potentially significant positive effect on EI and safety.

The diversity and depth of Level 2 tasks requested by various CAAs under a future RSOO structure make it difficult to consider which are high priority tasks. Clearly however, a significant number of CAAs have Stated their willingness to seek support in relation to:

- Provision of ANS support including development of PBN, AIS to AIM, SAR, PANS-OPS and oversight of ANSP.
- Provision of Flight Operations support including oversight of Foreign Carriers via ramp checking.
- Provision of development support in AIG.
- Certification support in relation Aerodromes.
- Provision of support to expand SMS and to develop and institute SSP (including support to the ANSP on how to implement the SMS, and to the CAA on how to audit SMS implementation).

Note that these identified core tasks address only the Level 2 tasks within these fields and do not consider the many ongoing Level 1 tasks which an RSOO will continue to provide in parallel, under this Scenario.

As well as the 'core tasks' of the RSOO, consideration must be given to the need to cover activities requested by States, which are of either a short term or very specialised nature. These activities can be considered as 'on demand' activities rather than core activities.

An example of a specialised, on demand activity within the flight operations or airworthiness area could be the need for a flight operations Inspector with helicopter qualifications and experience. This need was mentioned by some CAAs as a growing area within their industry and one in which they presently lack the necessary expertise. Indeed, it is likely that the need for such an inspector/s may be short-term and that it is not cost-effective for a CAA to maintain a full-time, continuous capability. A RSOO, however, could provide a short-term expert able to support two to three CAAs in some specific areas.

As this would be considered outside the core tasks of the RSOO, such an activity could be provided in a coordinated manner and on a cost-recovery basis to CAAs. Additionally, such an SME could provide training (including OJT) within the area of certification/approval and inspections as an adjunct to the

Level 2 activities, thereby increasing capabilities within the CAAs. As an 'on demand' activity based on reimbursement of costs to the RSOO by States, there is a need for an effective and dependable financial system between all parties to facilitate the activity.

A further option for provision of this Level 2 support is by use of the SACBM which would access regional inspectors, coordinated by the RSOO. Regional inspectors under the Matrix are presently assessed for suitability under specific criteria. To allow such inspectors to undertake Level 2 tasks would require a further assessment of suitability for this role and, possibly, advanced training. Such assessment may (or may not) further restrict the available pool of inspectors. It is critical however that this capability assessment be undertaken, and only highly competent and experienced experts are used in this role, due to the safety critical nature of Level 2 tasks versus Level 1 tasks. Separate to the suitability of the specific inspector is the general requirement for there to be a sound and acceptable delegation for the inspector to undertake the task on behalf of the State CAA.

Tasks that may be considered as 'on demand' for specific CAAs include:

- Identified short-term requirements driven specifically by a new aircraft classification or aircraft type (e.g. helicopters or a new model of transport category aircraft with specific requirements).
- Specific certification or initial approval tasks may be undertaken by the RSOO and aligned with OJT to provide a transfer of skills to the CAA as an additional benefit. Examples of this could include the initial approval of a Part 145 MRO with capabilities beyond those presently undertaken in the State or the setup of a Part 60 or 66 Examination and Licensing system. These examples are also good candidates for multiple State involvement providing both savings in the scale of activities and harmonization of processes.
- Specific surveillance or oversight tasks that may be undertaken by the RSOO and aligned with OJT to provide a transfer of skills to the CAA as an additional benefit. Examples of this could include oversight in the areas of dangerous goods and cabin safety, etc.

#### 9.1.6 Legal basis

A major factor in the transition from a COSCAP providing Level 1 services to an RSOO providing Level 1 and Level 2 services is the legal basis upon which the RSOO staff operate. This legal basis must effectively be an extension to the individual Inspector/employee of the RSOO of the privileges and powers granted the CAA under State legislation.

Historically, the IFAPM of COSCAP-SA indicates that this can be undertaken using a Delegation from the CAA to COSCAP-SA/the Inspector. In most of the SA States the basis for such a Delegation has been enacted. Regrettably, when some ICAO USOAP auditors reviewed this mechanism, the legal basis of the Delegation was deemed by the auditors to not be acceptable and therefore these activities have not been assessed for audit purposes. This position by ICAO auditors is largely based on the fact that a COSCAP does not have an internationally recognisable legal 'identity' and therefore cannot accept such a delegation from a State CAA.

A legally based and effective delegation must provide the CAA with an acceptable avenue to meet its State obligations for safety oversight. It is equally important that this mechanism be seen by ICAO to be acceptable and is therefore considered, during USOAP audit, as being an acceptable extension of the privileges and powers of the CAA.

Under Scenario A, the mechanisms of COSCAP-SA including the MoU within the IFAPM, the Programme Document and other related procedures would continue to apply. They would be available to provide guidance for issuance of a Delegation from the CAA, through its Director General, to a specific COSCAP-SA/RSOO Inspector (or inspectors). It should be realized that the COSCAP mechanisms provide only “soft law”, as opposed to “hard law” such as Treaty law or national legislation. To ensure therefore that this legal basis is sound it is necessary that the specific wording of various documents, namely the Delegation itself and especially the legal basis for the Delegation under national law, be confirmed as suitable. If not assessed as appropriate and sufficient, these Instruments would require adjustment. Indeed, another way of considering this is that the Level 2 activities provided under Scenario A would only be acceptable to ICAO if instruments of delegation and supporting documents are specifically written to address this issues.

To facilitate this outcome, the type of employment of RSOO staff must also be considered. In this regard, the Operational Assistance (OPAS) model may be appropriate to facilitate Delegation and the recognition by ICAO of such Delegation. Under the OPAS model, ICAO recruited and employed experts are “seconded” to a national CAA and are functionally integrated into its administration. OPAS staff may therefore be vested with national powers of varying degree under the national CAA legislation. Such powers could also include inspectorate functions. In this case, the Delegation from the CAA will be to the specific inspector and not the COSCAP. The inspector will deliver a Level 2 service, while the COSCAP plays a Level 1 role in coordinating the availability of the inspector and providing administrative support.

While the OPAS mechanism may overcome the Delegation difficulties, the fact that OPAS experts are ICAO recruited and employed means that the conflict-of-interest issue would remain to be resolved if the OPAS model is chosen.

Any related written instructions, processes and procedures for the execution of the Delegation will also require review. Finally, example documentation must be placed before ICAO for confirmation of adequacy; leading to a direction to USOAP auditors in relation to the recognition of these activities on behalf of the CAA.

#### 9.1.7 Governance and organisational implications

Under Scenario A, there are no changes to the existing governance and organisational arrangements from COSCAP-SA Phase 4. The organisation therefore will have policy and directions confirmed by a document equivalent to a Programme Document, Annual Work Plan and finances will be approved by the Steering Committee and achievement of the Work Plan will be managed by Chief Technical Advisor with regular recourse to the Chair of the Steering Committee.

#### 9.1.8 Staffing requirements including STEs

The provision of Level 2 activities under Scenario A can be undertaken by the CTA and additional experts as required. As Scenario A is restricted to provision of services within existing costs structures for the CAAs, there is a very definite limit on the activities that can be undertaken. The employment by ICAO, on behalf of a State CAA, of OPAS inspectors is normally restricted to a specific State CAA. There would need to be consideration of the mechanism details that would allow the employment of OPAS staff with the ability to work in multiple States. See also Paragraph 9.1.9 in relation to this.

Funding under Scenario A will allow the full-time employment of the CTA and one additional full time Regional Expert; as well as the occasional use of Short Term Experts (STEs) to fulfil specific roles. The continuing and expanded use of the SACBM will be included under Scenario A

Another staffing option within this Scenario may be one International CTA and two Regional Experts but this would leave no funds available for Short Term Experts. Both of these options require financial consideration.

To assess the greatest need of CAAs for the Regional Expert (s), it is assumed that the CTA position will continue as a Flight Standards position, in the short term (possibly 2+ years).

Given the variable demands of MS of COSCAP-SA, a Regional Expert should be ANS qualified with as broad an experience base as possible. Under COSCAP, full time contracts are normally let through TCB with a maximum of one year duration, which may or may not be renewed. In the case of the ANS expert it may be that the expert would be required for only one year or two and that after this period the funds could instead be used to provide a different expert; perhaps SSP development or AIG. Depending on the views of the Steering Committee and their assessed priorities, the order of employment of experts by discipline could be adjusted as required.

If a second Regional Expert were also to be employed rather than regular STEs, then it is most likely that an SSP or AIR expert would be of the most value.

Under Scenario A, the employment of STEs would be on an 'as required' basis to fulfil roles which cannot be undertaken effectively either by the full-time staff of the RSOO or the use of experts through the SACBM.

#### 9.1.9 Status of COSCAP-SA staff

Under Scenario A, the legal status of COSCAP-SA staff will not change. They may either continue to be employed by ICAO as at present, or they could be given OPAS status. Under OPAS, they would be functionally integrated into the national civil aviation administration of one of the COSCAP-SA Member States, but may provide services for all COSCAP-SA States. Their precise organisational status will depend on the type of tasks they are undertaking. When undertaking Level 2 activities for any State, the staff (Full time or STE), or an expert operating under the SACDM and coordinated by the RSOO, must have a formal status as identified by a legally binding Delegation. This Delegation must cover powers and responsibilities of the staff member while undertaking this role in line with the legislation or regulations under which he/she is acting and any constraints they may be under. Such Delegation may, depending on the legal system, require an appropriate express empowerment clause in the national primary or secondary civil aviation legislation (Civil Aviation Act or Civil Aviation Regulations), spelling out clearly the powers and any conditions or limits relating thereto which can be delegated by the DG of a CAA to an individual under his/her authority.

COSCAP-SA staff who are not, at the time, undertaking Level 2 tasks will have the status provided by their normal employment, be they Regionally enlisted or International. In other words, COSCAP-SA staff will only have a specific status relating to Level 2 duties in a specific State when they are actually undertaking those duties.

#### 9.1.10 Economic evaluation of Scenario A

The funding available to Scenario A in the 'Base Case' (no additional cost to that presently paid) would be sufficient to employ a full-time CTA, one Regional Expert, and a locally recruited "Implementation Assistant". The cost of an administrative assistant is expected to be borne by the host State. It was assumed that this level of contribution from the hosting State would be continued.

The Study team draws attention to the willingness expressed by a significant number of CAAs to take advantage of support in relation to:

- Provision of ANS support including development of PBN, AIS to AIM, SAR, PANS-OPS and oversight of ANSPs.
- Provision of Flight Ops support including oversight of foreign carriers via ramp checking.
- Provision of development support in AIG.
- Certification support in relation to aerodromes.
- Provision of support to expand SMS and to develop and institute SSP (including support to the ANSP on how to implement the SMS, and CAA on how to audit SMS implementation).

It is possible that these tasks could be performed by short-term experts (STEs) who are made available to Member States on a cost-recovery basis. Employing these experts under the RSOO-SA could be more efficient because they can meet the needs of sub-sets of Member States more efficiently than the Member States employing them individually. Thus, allowance has been made under Scenario A for the employment of STEs who would be on an 'as required' basis to fulfil roles which cannot be undertaken effectively either by the full-time staff of the RSOO or the use of experts through the SACBM. In that case, even more stringent criteria would need to be applied in the selection of experts from the SACBM.

Accordingly, an annual allowance of \$120,000 has been included for this purpose, but the Steering Committee would be able to increase or decrease this commitment based on actual use of these on-demand services. Associated with this would be higher travel and DSA costs. The overhead costs of 10% have been adjusted accordingly. These are the only changes in costs compared to the Base Case of COSCAP-SA Phase IV and it can be recovered through charges levied on the first instance, on the requesting Member States, but in turn from industry sources where regulatory services are being provided.

The activities of SARI would be brought under the RSOO-SA to continue cooperative programmes for harmonisation of regulations and procedures, the costs of which would need to be borne by the Member States. At a minimum, implementation of the work carried out by SARI to date should be pursued.

Critically, Scenario A should permit COSCAP-SA to perform RSOO functions, including the coordination of Level 2 functions by specific inspectors. It is assumed that this can be achieved on the basis of inputs by the Member States such as Delegations. Recent initiatives of ICAO in relation to the status and increased capabilities of RSOOs under the GASOS programme, will also need to be considered. Indeed, they may be beneficial for some Scenarios.

The estimated increase in costs of Scenario A over and above the Base Case is \$830 thousand taken over the five years of the Programme. The difference arises because of the additional employment of international technical experts capable of assisting MS with operational tasks with an expectation that these costs would be covered by user charges and/or donor assistance or by the States themselves instead of engaging needed assistance individually. Also, this cost does not include requirements to continue an effective programme of regulatory harmonisation. At minimum, SARI activities should be continued by the MS with coordination being provided by the RSOO-SA. However, the harmonisation of regulations is a vital success factor for an RSOO and every effort should be made to encourage donor support to carry out a more extensive programme.

The RSOO-SA model should allow the States to enjoy the benefits of Level 2 operational services and to have recognition of the work performed by ICAO in its audits. An alternative open to a Member State is to employ an International Expert from a recognised entity to perform necessary certification and licensing functions, or to prepare regulations and procedures.

The following measurable net benefits were attributed to Scenario A:

- The increased value of the Technical Assistance provided by the CTA and the Regional Expert because they are able to carry out Level 2 activities.
- The value of the additional International Experts carrying out operational tasks on Technical Assistance missions.
- The value of the additional International Experts carrying out Programmes including the production of manuals and guidance materials, regional training, and possibly involvement in harmonisation of regulations.
- A productivity improvement arising from transformation from an entity performing Level 1 (advisory) activities to one that also carries out Level 2 (operational) functions.
- An increased Level of Effective Implementation results for the State during USOAP audit.

In particular, Item (3) above reflects the value of continuing the harmonisation of regulations as well as more general benefits arising from the RSOO being able to provide operational assistance not measured in other ways. The judgement of the Study team is that this productivity improvement would be at least 30%. This factor was applied to the value of Technical Assistance provided by the RSOO experts and those provided through the SACBM. It also was applied to the value of the Programme activities and to training.

The net benefits over five years would amount to \$4.06 million. Sixty-two percent of these benefits were estimated to be generated by the productivity improvement, the biggest single element being that the value of training increased significantly because training becomes much more efficient and effective with harmonised regulatory programmes in place. Improved productivity of training thus individually accounted for 37% of the net benefits. Note that the training undertaken by MS would also benefit from harmonisation of regulations, but this has not been included here in the measurable benefits. The next most important category of benefit was provided by the addition of technical assistants.

On this basis, the Benefit to Cost (B/C) Ratio is 4.9. If the cost of engaging the additional technical assistants is removed, there is no additional cost other than the establishment costs and the benefits



would amount to \$2.78 million, but this is predicated on maintaining an effective regulatory harmonisation programme.

#### 9.1.11 Financial implications

Scenario A has limited financial implications for CAAs since it is based on the existing contributions to COSCAP-SA and SARI, with one exception.

Some MS have, in the recent past, arranged for the provision of specialist Technical Assistance through COSCAP-SA. Scenario A has been designed to accommodate the interest in enhancing this capability to perform Level 2 functions on the basis that the additional costs would be recovered from those MS which request TA services. These MS would have the option to recover the costs directly from users. Hence, the additional cost of engaging experts should not affect the contribution levels over and above the Base Case of continuing with COSCAP-SA.

The additional cost of this element over five years is estimated to be approximately \$830 thousand, including an allowance for travel to perform in-country work. On the assumption that these resources would be fully utilised, those MS requesting services would pay an average of \$700 per International Expert day. Funds would need to be deposited in the Trust Fund by the interested MS in advance. The Steering Committee should monitor the continuing interest in this service to individual MS, or sub-groups of MS, and make necessary adjustments to the scope of this service.

That being the case, key elements of the financing plan are as follows:

- Any surplus funds remaining in the Trust Fund for COSCAP-SA be retained/transferred into the Trust Fund for RSOO.
- The SC to approve a five-year programme for RSOO and on a budget to sustain the level of activities including those previously relating to SARI.
- The SC to approve a cost allocation methodology that recognises three levels of activity; namely, (i) those that provide direct benefits to individual States; (ii) those that provide benefits to a sub-set of States; and (iii) those that are of a general nature and benefit all States.
- The SC approve the levels of charges to be applied for type (i) activities based on costs of service provision in accordance with the guidance contained in ICAO Doc 9734 Part B.
- These same charges can form the basis of charges levied for type (ii) activities where the services provided bear a direct relationship to benefits received by the individual Members of the sub-set of States.
- For those activities of a general nature for both type (ii) and type (iii), the costs should be apportioned based on the SC's agreement to ratios that reflect the net benefits that each State can expect to derive, also taking account of the level of aviation activity and the ability of the State to contribute.
- As a matter of priority, alignment between the plans for RSOO-SA and those of the Member States should be pursued with a specific aim to achieve economies in the overall cost of safety oversight.
- Donor funds could be sought to establish appropriate management and reporting systems for the RSOO and for other costs in establishing the RSOO-SA.

- RSOO and the Member States continue to carry out joint work to design and gain approval for a sustainable model of funding from user charges to ensure independence of the safety regulators at both the national and regional levels.

#### 9.1.12 Risk analysis

An account of risks associated with RSOOs is provided above. A summary of key risks is provided below:

- The major risk to this Scenario is that some CAAs will see it as providing insufficient support to meet their Stated requirements.
- Some CAAs may see this Scenario as still being tied too closely to ICAO, including the alleged conflict-of-interest between USOAP and assistance activities.
- Any lack of clarity about the authority to accept delegation of functions from States that are necessary to authorise the RSOO to carry out Level 2 functions on behalf of States, and any corresponding authority required in the Member States would inhibit the success of the Programme.
- Continued lack of recognition by ICAO of the delegation mechanism used by COSCAP-SA/RSOO, despite renewed efforts to review and strengthen the delegation instruments, would also inhibit the success of the Programme.
- A failure to align the activities of the Member States with those of the RSOOs and to reflect this in their own planning and their priorities would reduce the effectiveness of the RSOO.
- Maintenance of a strong regulatory harmonization programme is a key success factor for an RSOO and it is critical that the resources previously devoted to SARI are available and that MS accord a high priority to implementation of the harmonized regulations and procedures.
- The shortage of qualified and experienced technical manpower has been found to have a debilitating impact on the effectiveness, relevance and sustainability of affected RSOOs, particularly with regard to their ability to deliver Level 2 operational assistance to States. This is a challenge shared by all the MS and the Steering Committee is urged to devise a strategy whereby the RSOO plays a positive role in utilizing scarce regional resources to the maximum advantage.
- Avoiding the tendency observed globally to incur higher costs with the institutionalization of RSOOs.
- Delays in payment of annual contributions by Member States have affected the performance of RSOOs globally and with COSCAP-SA.
- Timely responses to RSOO requests, particularly in relation to the coordination and implementation of in-country technical missions and conduct of training activities, are necessary for the effective functioning of the RSOO.

#### 9.1.13 Advantages of this Scenario

- As the minimum change option, Scenario A is relatively easy to institute and is totally within the powers of the existing Steering Committee.
- It can be instituted quickly and requires little if any change to financial contributions and structures.
- While it will take some work, it is expected to deliver significant benefits as a result of having ICAO audit recognition that individual RSOO experts have the necessary legally delegated authority to perform operational tasks.
- It is effectively 'known' and is therefore seen as low-risk.

- It uses ICAO management and oversight as part of its governance structure.
- It uses existing ICAO based financial management which has historically been effective.
- It uses existing ICAO based recruiting systems which are known and understood.

#### 9.1.14 Disadvantages of this Scenario

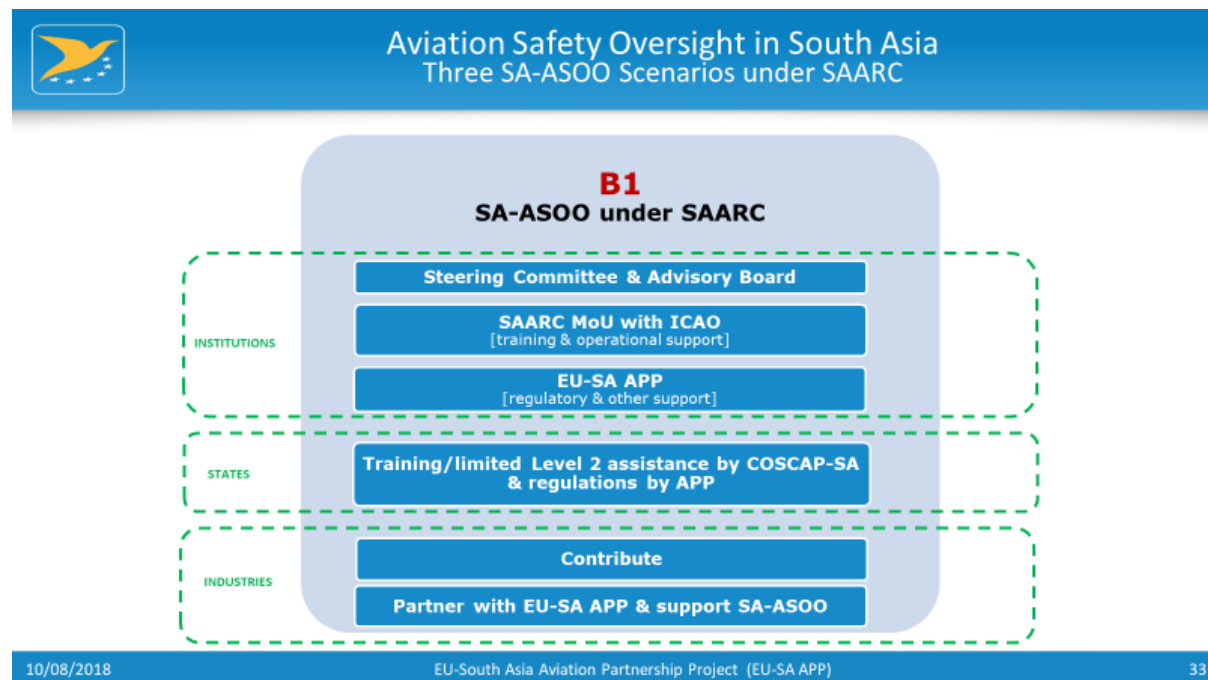
- As the minimum change option Scenario A is the least likely to address the major issues identified by the Feasibility Study team.
- It does not, due to its legal and organisational constraints, provide major potential for development towards a fully functional RSOO as laid out in the ICAO Safety Oversight Manual, Part B: The Establishment and Management of a Regional Safety Oversight Organization (Doc 9734, Part B).
- It requires the definition and implementation of a legal basis for effective delegation for Level 2 tasks which is acceptable to States and ICAO.
- It continues the ICAO-based management and oversight system which some believe does not give adequate separation between the RSOO and USOAP.
- It continues the ICAO-based recruiting system which has been a contributor to delays and failures at various stages of COSCAP-SA. It uses an OPAS staffing system which has not previously been used across multiple States.

## 10. EVOLUTION OF COSCAP-SA TO A RSOO: SCENARIOS B

### 10.1 Scenario B1

Under this Scenario COSCAP-SA transforms into South Asian – Aviation Safety Oversight Organization (SA-ASOO), continues Level 1 activities and provides considerable Level 2 activities to States, using the SAARC Treaty as an 'umbrella' legal mechanism.

Figure 10-1 : Evolution of COSCAP-SA to a RSOO - Scenario B1



#### 10.1.1 Objective

Scenario B1 is an evolution of Scenario A, i.e. all the basic assumptions made for Scenario A will be valid for this Scenario. The advantage of Scenario B1 is to give the DGs of the SA States an option which provides considerable Level 2 activities, in addition to the Level 1 activities presently undertaken; while maintaining the known ICAO based management systems of COSCAP-SA.

Scenario B1 will legally function under the existing SAARC Treaty and will include an MoU or similar arrangement (less than Treaty level) between SAARC and ICAO. Further detail on SAAAC is included at 10.1.6. There is benefit seen to SA-ASOO having a permanent location in one of the Member States under this Scenario. There will therefore additionally be a requirement for a Host Agreement between SAARC and the Host State of the SA-ASOO Office. Note that a permanent location for the organisation under this Scenario is not critical but is seen to be desirable to build ongoing knowledge and support through non-technical assistants at relatively low cost. It also has the potential to increase stability and prevent the disruption of ongoing location changes.

The Chair of the SC or Executive Board under various Scenarios is however intended to continue as a revolving appointment amongst the MS. It should be noted that in order to function under the legal umbrella of SAARC, the continued operation of the SC or Executive Board would in all likelihood need to become integrated in some form into the organisational structure of SAARC, by virtue of a decision

of the SAARC Council of Ministers under Article IV of the SAARC Charter. This is one of the drawbacks of using the SAARC Treaty as a legal umbrella, but can hardly be avoided.

As this Scenario B1 requires additional funding over Scenario A, other sustainable funding which may be viable is suggested. Options for this additional funding could include co-funding by cash and in-kind contributions from donor organisations, CAAs, aircraft manufacturing industries, airlines etc.

#### 10.1.2 COSCAP-SA functions to be maintained

The functions presently undertaken by COSCAP-SA Phase IV will be maintained and additionally the considerable backlog of activities from Phase IV will be addressed under this Scenario. Those additional activities defined in COSCAP-SA Phase V will also be included, assuming Steering Committee approval is given to the directions of Phase V.

#### 10.1.3 Expanded functions: sequential implementation by CE/AREA

The major outcome difference between Scenario A and Scenario B1, apart from an amended legal basis for the organisation, are increased outputs due to the recruitment of additional long-term experts based in the SA-ASOO, to provide Level 2 support to States.

The Feasibility Study team identified a large number of Level 2 activities which could be undertaken by the SA-ASOO. Consideration by visited CAAs of their specific need for assistance varied from virtually all critical elements and audit areas (disciplines) to nil. Between these two extremes there was a great variability of need identified, although many of the States were interested in substantial Level 2 assistance. The actual sequencing of work is a decision initially for the SC of the new organisation, should this Scenario be adopted. It is also likely that any RSOO Implementation planning that is initiated after a decision is made by the DGs, will address the issue of sequential implementation, in particular as it relates to the priorities for hiring/using experts in specific disciplines.

General tasks of a State Safety Oversight system that many CAA s identified as high priority for Level 2 assistance included:

- Advisory and consultative (although nominally Level 1, this particular area relates to support for Level 2 activities such as surveillance).
- Regulatory (including the review, assessment and recommendation for approval of industry submissions for AOC, MRO, ATO etc).
- Oversight (including the inspection and audit of industry activities as part of a State Surveillance Programme).
- Enforcement (in specific areas, in particular investigation of identified safety issues and recommendations for action).

In some cases CAAs specified that Level 2 assistance in these general tasks may be limited to a specific area e.g. ANS.

#### 10.1.4 Core activities vs. activities on demand

As already Stated in Scenario A, it is of vital importance to continue with the harmonisation of regulations and procedures to facilitate regionally based assistance to States. This task has been performed through SARI over the last ten years. During the initial research State visits, there were

variable views on how effectively this task had been undertaken, although all States agreed with the importance of the task. At this time the situation for ongoing funding of SARI is not clear. In relation to Scenario B 1, this Feasibility Study assumes that further SARI funding will be available and that some such funding can be directed to harmonisation of regulations and additional Level 2 tasks.

As can be seen from the various tables in the introduction, the diversity and depth of Level 2 tasks requested by various CAAs, under a future SA-ASOO structure, made it difficult to consider which are the higher priority tasks. Clearly however, a significant number of CAAs have Stated their willingness to seek support in relation to some specific 'core' areas. As previously covered in Scenario A, but included here for clarity, these are:

- Provision of ANS support including development of PBN, AIS to AIM, SAR, PANS-OPS etc and oversight of the ANSP.
- Provision of Flight Ops support including, but not restricted to, oversight of foreign carriers via ramp checking.
- Provision of development support in AIG.
- Certification support in relation to Aerodromes.
- Provision of support to expand SMS and to develop and institute SSP (including support to the ANSP on how to implement the SMS, and to the CAA on how to audit SMS implementation).

Note that these identified core tasks address only the Level 2 tasks within these fields and do not consider the many ongoing Level 1 tasks which the SA-ASOO will continue to provide in parallel.

As with Scenario A, additional to the 'core tasks' of the SA-ASOO, consideration must be given to the need to cover activities of either a short-term or very specialised nature which are requested by States. These activities can be considered as 'on demand', rather than core.

An example of a specialised activity within the flight operations or airworthiness area could be the need for a flight Inspector with helicopter qualifications and experience. This need was mentioned by some CAAs as a growing area within their respective industry and one which they presently had no expertise to cover. It is likely that the need for such an inspector/s may be short term and that is not cost effective for any one CAA to employ full time such an individual. A SA-ASOO however could provide a short term expert able to support 2-3 CAAs or more in a coordinated manner.

Such a Level 2 activity would be outside the core tasks of the SA-ASOO due to the relatively small overall requirement. Additionally, such an SME could provide training (including OJT) within the area of certification/approval and inspections as an adjunct to the Level 2 activities, thereby increasing capabilities within the CAAs. It is a consideration under Scenario B1 that such an 'on demand' activity may be provided by the SA-ASOO on cost-recovery basis funded by the CAAs with the specific need.

Tasks that may be considered as 'on demand' for specific CAAs include:

- Identified short-term requirements driven specifically by a new aircraft classification or aircraft type (e.g. helicopters or a new model of transport category aircraft with specific requirements) or industry system (e.g. Electronic Flight Bags).
- Specific certification or initial approval tasks may be undertaken by the RSOO and aligned with OJT to provide a transfer of skills to the CAA as an additional benefit. Examples of this

could include the initial approval of a Part 145 MRO with capabilities beyond those presently undertaken in the State or the setup of a Part 60 or 66 Examination and Licensing system. These examples are also good candidates for multiple State involvement providing both savings in the scale of activities and harmonization of processes.

- Specific surveillance or oversight tasks that may be undertaken by the RSOO and aligned with OJT to provide a transfer of skills to the CAA as an additional benefit. Examples of this could include Dangerous Goods and Cabin Safety, etc.

It should also be noted that the provision of such SME support to a number of States has an additional advantage of harmonization as the approach and resultant implementation will be exactly the same for this specific issue in each State.

Although the listing of potential 'on demand' activities shown above is the same as is shown against Scenario A, the difference is that some of these 'on demand' activities may be able to be more routinely handled and become 'core activities' under the B Scenarios. This is because of the greater numbers and breadth of technical staff available under this Scenario.

The issues regarding the recognition by ICAO of a SA-ASOO providing Level 2 services to a State are not the same under Scenario B1 as has previously been described for Scenario A. Details are provided under 10.1.6. below.

#### 10.1.5 Governance and organisational implications

The "Institutional Framework" presently used for COSCAP-SA was drafted and subsequently adopted by the SC at its 14th meeting in June 2005 (revised later). This document provided for COSCAP-SA having its own work programme, its own budget and its own staff, but not being incorporated as a legal entity under international or national law. It was therefore designed as a co-operative, unincorporated institution without legal personality. Funding is provided partly through contributions from Member States, and partly through grants from third-party multilateral and bilateral donors.

The organizational structure of SA-ASOO remains largely unchanged in Scenario B1 with overall control vested in the SC via a Chairman and implementation responsibilities vested in the CTA.

#### 10.1.6 Legal basis

There is a fundamental change in the legal basis of the organisation between Scenarios A and B1.

For Scenario B1, the following amended legal structure would apply :

- The use of the existing SAARC Treaty as an umbrella to provide a legal basis for the RSOO.
- A MoU between SAARC (on behalf of SA-ASOO) and ICAO to provide the management of the organization (via the CTA).
- Preferably, a Host Agreement between SAARC and the State where the SA-ASOO will permanently be located.

The Treaty establishing the South Asia Association for Regional Cooperation (SAARC), was signed in Dhaka, Bangladesh in 1985 by the Heads of State of the eight States members of COSCAP-SA. The provisions in the SAARC Treaty are sufficiently broad to accommodate any type of cooperation among its Parties, including regional safety oversight cooperation for civil aviation. While SAARC is

not clearly identifiable in its charter Treaty as a legal entity, it appears from the information provided by its Secretariat that in practice SAARC is recognized as being a legal entity since it is able to conclude international Agreements, employs its staff in its own name and operates bank accounts.

The use of the existing SAARC Treaty as a legal umbrella for the SA-ASOO will however require, firstly, that the Council of Ministers of SAARC make a formal decision under Article IV (c) of the Treaty to bring regional safety oversight cooperation for civil aviation under the activities of SAARC. Secondly, the organisational set-up of SA-ASOO, including the Steering Committee or Executive Board and other bodies as well as the staff, would need to be legally linked to SAARC by virtue of a decision either of the Council of Ministers of SAARC under Article IV or of the Standing Committee under Article V of the SAARC Treaty. These decisions will require careful preparation in order to ensure that the Council of Ministers of SAARC will not pose conditions which are difficult to reconcile with the objectives of SA-ASOO.

Note that decision making at all levels under SAARC, including the level of the Council of Ministers, requires unanimity. Put simply, decisions are required to be unanimous. This stems from a strict interpretation of the SAARC Charter. It is possible that the Secretariat/MS have established a process or procedure to allow some decisions to move forward without unanimous agreement, however the Feasibility Study team is still in the process of trying to confirm this.

As regards the conclusion of an MoU with ICAO, this is seen as not problematic; however, it will need to be concluded by SAARC on behalf of the SA-ASOO, since in Scenarios B1, B2 and B3 only SAARC is a legal entity, not SA-ASOO.

As regards the Host Agreement with the State where the SA-ASOO will be located, it will also for the same reasons need to be concluded by SAARC as the legal umbrella entity. This Agreement will, from an international law viewpoint, be a Host Agreement for a Branch Office of SAARC, not a Headquarters Agreement. Such an Agreement is feasible, but the privileges and immunities granted may be more limited than for a Headquarters Agreement and also limited by those which SAARC enjoys/does not enjoy at its Headquarters in Nepal.

As regards the organisational set-up of SA-ASOO, there is seen to be an advantage in an additional Advisory Board to provide support to the SC and the CTA on a more regular basis than available through the SC. The Advisory Board is a mechanism which provides the capability of including involved participants such as ICAO, EASA, FAA, industry etc. so that their experience can benefit the SC and the CTA in both longer term and operational decision making, as necessary or required. An Advisory Board composition can be flexible and, as well the participants above, it could include the Chair of the SC and one or two other Member States. This smaller Board could meet as required but more frequently than the SC, so that the CTA can be provided with guidance/assistance on a more regular basis. The recommendation for an Advisory Board relates to all three of the 'B' Scenarios.

Like the SC or Executive Board (see above), the Advisory Board would also need to be linked in some form to the organisational structure of SAARC by virtue of a decision of the SAARC Council of Ministers. This is required as a consequence of the fact that under Scenario B1, SA-ASOO activities are carried out under the legal umbrella of SAARC.



#### 10.1.7 Staffing requirements including STEs and status of COSCAP-SA staff

The provision of Level 2 activities under Scenario B1 can be undertaken by the CTA and additional experts as required. Scenario B1 envisages a mix of long term and short term international and Regional Experts as required.

The major funding related difference to Scenario A is that Scenario B1 proposes, in addition to the CTA:

- An International Expert for Aircraft Accident and Incident Investigation.
- An International Expert for State Safety Policy/ Safety Management System (SSP/SMS).

In addition, it is proposed to have available a number of Regional Experts composed of:

- A Personnel Licensing expert.
- A Harmonisation/Implementation expert (undertaking a role similar to SARI).
- An ANS expert.
- An AGA expert.
- An Airworthiness expert.

Note that the provision to States of these experts to undertake Level 2 tasks may be facilitated by personnel from the SACBM, by identifying suitable individuals to fill these positions. The continuing and expanded use of the SACBM is recommended to be included under Scenario B1.

To meet the identified requirements of some States the recruitment of short-term International Experts having the following backgrounds would be required:

- Safety Assessment of Foreign Aircraft (SAFA).
- European Co-ordination Centre for Accident and Incident Reporting Systems (ECCAIRS).
- Medical Issues in Aviation (AVMED).
- Legal.

To accede to the need expressed by CAAs for the CTA being an International Expert, it is assumed that in Scenario B1 the CTA position will continue as a Flight Standards position, in the short-term (up to 2Years).

Given the variable demands of Member States of COSCAP-SA, the regional ANS expert should have as broad an experience base as possible to allow involvement in PBN, AIS to AIM, SAR, PANS-OPS etc.

Under Scenario B1, all employment of experts will be undertaken (other than possibly under the SACBM) through ICAO TCB with a maximum contract duration of one year. Depending on the discipline involved and the wishes of the SC, these may or may not be classified as renewable contracts (i.e. they may or may not roll over into a longer term commitment of the expert). For example, in the case of the ANS expert it may be that the expert would be required for only one year or two and that after this period the funds could instead be used to provide a different expert; perhaps SSP development or AIG. Depending on the views of the SC and their assessed priorities, the order of employment of experts by discipline could be adjusted as required.

Similar to Scenario A and under a MoU with ICAO, experts undertaking Level 2 activities will need to be given OPAS status to allow effective delegation from the CAAs. The employment by ICAO, on behalf of a State CAA, of OPAS inspectors is normally restricted to a specific State CAA. Under OPAS, they would be functionally integrated into the national civil aviation administration of one of the COSCAP-SA Member States, but may provide services for all COSCAP-SA States. This situation will pertain for all of the 'B' Scenarios. There would need to be consideration of the mechanism details that would allow the employment of OPAS staff with the ability to work in multiple States.

Under Scenario B<sub>1</sub>, the employment of STEs would be on an 'as required' basis to fulfil roles which cannot be undertaken effectively either by the full-time staff of the RSOO or the use of experts through the SACBM.

The status of employees under Scenario B<sub>1</sub> of the SA-ASOO will be exactly the same as described in Scenario A. That is, their actual status will be dependent at any time on the type of task they are undertaken; be it Level 1 or Level 2.

#### 10.1.8 Economic evaluation of Scenario B<sub>1</sub>

With Scenario A, the costs incurred by the MS were not increased, but this constraint is not applied within Scenario B<sub>1</sub>.

Any cost involved in establishing a legal personality for the RSOO will be met by in-kind contributions from MS and donors.

Key design parameters for Scenario B<sub>1</sub> are:

- Legal basis is the SAARC Treaty + an MOU with ICAO + a Host Agreement.
- ICAO Recognised delegation of authority including AIG.
- Governance by the Steering Committee + ICAO assisted by an Advisory Board.
- Trust Fund management by ICAO, including recruitment.
- CTA continues, including management responsibility.
- Other long-term International Experts in AIG and SSP/SMS.
- Four long-term Regional Experts (Licensing expert also undertaking harmonisation + implementation, (SARI), ANS, AGA, AIR).
- Equivalent of one annual full-time International Experts to be filled with shorter-term assignments (specialists in SAFA, ECCAIRS, AVMED, LEG).

The total estimated cost of Scenario B<sub>1</sub>, taken over 5 years, is \$7.81 million, of which 66% is for the employment of experts, and another 15% is incurred in travel costs in missions to the MS. Overhead costs increased because they are based on the levy of 10% on costs for project administration by ICAO.

The (measurable) services (benefits) provided as State-specific activities include:

- Benefit 1: Training - in-country, incl. OJT
- Benefit 2: Technical Assistance – advisory including Level 2
- Benefit 3: Technical Assistance – Level 2 operational

The (measurable) services (benefits) provided as Programme activities include:

- Benefit 4: Training - regional
- Benefit 5: Manuals and guidance
- Benefit 6: Harmonisation of regulations, etc

Training in the Base Case delivered 1,800 person-days. This was increased to 2,500 in-country days and 680 regional course person days per annum in Scenario B1. Account also was made for the production and maintenance of manuals and guidance materials and of the capability to expand the number of harmonised regulations and to further assist in implementation.

Assumptions used in the evaluation of Scenario A about the value of Technical Assistance, including SACBM inputs, and Programme activities were continued. However, the productivity improvement was increased to 35% reflecting the benefits of a stronger core programme.

The total estimated annual benefits of Scenario B1 over and above the Base Case amount to \$5.8 million annually. The largest single benefit is attributed to harmonised regulations (44%), which is consistent with the findings in the RSVOP and ICAO guidance. Provision of operational Technical Assistance amounts to 16% of the net benefits, and Training adds another 11% to the total. The productivity improvement added 20% to the total estimated benefits.

The estimated increase in costs of Scenario B1 over and above the Base Case is \$5.6 million taken over the five years of the Programme. Against this cost, the net benefits over five years would amount to \$28.8 million. On this basis, the Benefit to Cost (B/C) Ratio is 5.1.

However, Scenario B1 also needs to be compared with the alternative of Scenario A. A higher B/C ratio is useful in ranking projects only if they are based on the same level of costs. The correct procedure is to examine the incremental costs and benefits of Scenario B1 relative to Scenario A.

The additional cost is \$4.8 million and the additional net benefits are \$25.6 million. The resulting B/C ratio is 5.33. That is, for every additional dollar spent by the MS on moving from Scenario A to Scenario B1 would generate a benefit (cost saving) of \$5.33.

#### 10.1.9 Financial implications

Scenario B1 requires a budget of \$8.2 million over a five-year period, but this delivers measurable benefits of \$27.2 million. That is, for every additional dollar invested in the RSOO, the MS would save \$5.12.

The core elements of the financing plan discussed above under Scenario A apply again. However, there is scope to attract donor support for specific elements of Scenario B1.

It has been assumed that current funding of SARI would be available to the RSOO, but the expansion of the scope of activities under Scenario B1 also allows additional work on harmonisation of regulations. Possibly the funding of this additional element of Scenario B1 (approximately \$60,000 per annum) could be raised with donors.

Development partners, such as multilateral development banks, generally only provide financing for setting up a system that ultimately will become self-sustainable. Thus, other elements that possibly could attract donor interest include:

- The establishment of a permanent location for the RSOO, include computers, software, office equipment and IT systems to improve management and databases (estimate \$100,000).
- Training of the RSOO experts possibly could be provided as in-kind assistance by donor States/international organisations and industry (an amount of \$400,000 is included in the budget to pay commercial rates for such training).

However, the global experience has been that a reliance on donor funding is not a basis for sustaining RSOOs. ICAO recommends consideration of user charges as a way to finance safety oversight, and some regional organisations have moved, or are considering moving in this direction. Some MS in South Asia already derive their income in one way or another from charges on users, and the requirements for funding Scenario B1 amount to adding a few cents to the existing charges.

This is not a significant impost, especially since safety is important to passengers, but a key consideration is how to provide assurance to the RSOO that it has a sustainable and independent source of funds. An option for the Steering Committee to consider is to enable the RSOO to levy its own user charge and to retain that income in its Trust Fund for uses approved by the SC.

As mentioned above, it is recommended that the Steering Committee approve a cost allocation methodology recognising three types of activity; namely, (i) those that provide direct benefits to individual States; (ii) those that provide benefits to a sub-set of States; and (iii) those that are of a general nature and benefit all States. Accordingly, it is further recommended that the Steering Committee:

- Apportion the costs of the Programme for Scenario B1 that are attributable to each of the three types of activity.
- Approve a level of charges to be applied for the provision of type (i) activities based on costs of service provision in accordance with the guidance contained in ICAO Doc 9734 Part B.
- Agree that these same charges form the basis of charges levied for type (ii) activities where the services provided bear a direct relationship to benefits received by the individual Members of the sub-set of States.
- For those activities of a general nature for both type (ii) and type (iii), the costs should be apportioned based on an agreement on ratios that reflect the net benefits that each State can expect to derive, also taking account of the level of aviation activity and the ability of the State to contribute.

#### 10.1.10 Risk analysis

Scenario B1, although operating with an expanded budget and broader scope of activities, shares the generic risks of an RSOO discussed above with Scenario A. The issue is more that the degree of intensity of the risks is somewhat greater, especially in relation to funding.

Additionally, the need for unanimous decision making by all members of the Council of Ministers, if confirmed, is seen to provide considerable risk that a favourable decision may not be reached.

#### 10.1.11 Advantages of this Scenario

- Provided the SAARC Council of Ministers fully cooperates, no changes in the organizational structure of the SA-ASOO.
- Additional long term International Experts may be based at the SA-ASOO to cover a wider area of responsibilities.
- While it will take some work, it is expected to deliver significant benefits as a result of having ICAO audit recognition that RSOO experts have the necessary legally delegated authority to perform operational tasks.
- It addresses most of the major issues identified by the Feasibility Study team.
- It uses ICAO management and oversight as part of its governance structure.
- It uses existing ICAO based recruiting systems which are known and understood.

#### 10.1.12 Disadvantages of this Scenario

- It requires the unanimous agreement and full cooperation of the relevant SAARC bodies, in particular the SAARC Council of Ministers, for the institutional structure and operation of the SA-ASOO.
- It adds an additional layer of governance, namely the SAARC bodies.
- It requires the definition and implementation of a legal basis for effective delegation for Level 2 tasks, which is acceptable to States, ICAO and SAARC.
- It continues the ICAO based management system which some believe does not give adequate separation between the SA-ASOO and USOAP.
- It continues the ICAO based recruiting system which has been a contributor to delays and failures at various stages of COSCAP-SA.

## 10.2 Scenario B2

In Scenario B 2, COSCAP-SA transforms into the South Asian – Aviation Safety Oversight Office (SA-ASOO) the same as B1. Level 1 activities continue, and considerable Level 2 activities are provided to States, using the SAARC treaty as an 'umbrella' legal document. The main difference is in the management relationships which include two MOUs, i.e. between SA-ASOO and EASA as well as SA-ASOO with ICAO. Therefore, ICAO maintains assistance and EASA also assists, in particular in relation to harmonisation of regulations and process.

Figure 10-2 : Evolution of COSCAP-SA to a RSOO - Scenario B2



### 10.2.1 Objective

Scenario B2 is effectively a variation on Scenario B1 which formalises the ongoing relationship between the SA-ASOO and both ICAO and EASA. These relationships relate to ICAO's previous involvement with the management of COSCAP-SA (with overall directions provided by the DGs of SA States) and EASA's continuing support for regulatory harmonisation in the region through SARI. The method of formalisation is by the development and signing of two MoUs. Separately, letters of delegation in some form will be completed bi-laterally between SA-ASOO and respective delegating MS.

The advantage of Scenario B2 is to give the DGs of the SA States an option which provides the same outcomes as Scenario B1 (considerable Level 2 activities) while formalising the historical relationships with both ICAO and EASA. Effectively there will be no involvement of either ICAO or EASA in the overall direction of the SA-ASOO, however it is recommended that the SC invite ICAO and/or EASA to participate in either the SC or the Advisory Board.

In all other ways, the SA-ASOO under Scenario B2 will function in the same way as under B1. Other than these 'governance/organisational' changes, Scenario B2 is very similar in its intended outcomes to Scenario B1.

#### 10.2.2 COSCAP-SA functions to be maintained

The Level 1 functions of COSCAP-SA will be maintained as well as specific Level 2 activities, as per Scenario B1.

#### 10.2.3 Expanded functions: sequential implementation by CE/AREA

The functions of Scenario B2 remain the same as described in Scenario B1.

#### 10.2.4 Core activities vs. activities on demand

The core activities vs functions on demand remain the same as described in Scenario B1.

#### 10.2.5 Legal basis

In Scenario B2, there is a continuing connection with ICAO however the legal basis for the operation of the SA-ASOO will be, as in Scenarios B1, the existing SAARC Treaty as well as a Host Agreement with the host State. In addition, there will be MOUs each between SAARC (on behalf of the SA-ASOO) and ICAO and EASA. These will define the role of each organisation in relation to the SA-ASOO. The SC should give consideration to inviting ICAO and/or EASA to participate in either the SC or the AB.

The issues regarding the status of SA-ASOO staff from time to time remain the same as under Scenarios B1.

#### 10.2.6 Governance and organisational implications

Scenario B2 proposes a similar governance system to Scenario B1 with only the addition of EASA as per the respective MoU, including a possible advisory role in the SC and/or the Advisory Board.

Scenario B2 would therefore have the following 'legal' and administrative structure:

- Use of the SAARC Treaty as an 'umbrella'. The considerations relating to the use of the SAARC Treaty as an umbrella, listed under Scenario B1, apply here as well.
- A Host Agreement with the State where the SA-RSOO will permanently be located.
- An MoU with ICAO.
- An MoU with EASA.

There will be a SC plus an Advisory Board where consideration may be given for ICAO and EASA to be represented.

#### 10.2.7 Staffing requirements including STEs and status of COSCAP-SA staff

Recruitment of staff will be the same as B1.

#### 10.2.8 Economic evaluation of Scenario B2

Differences in the design parameters of Scenario B2 compared to Scenario B1 are only the inclusion of EASA via an MOU. There are no differences in costs between B1 and B2 as EASA would be responsible for their costs for attending meetings etc.

There is a possibility however that continuing, in fact even greater, involvement of EASA with the SA-ASOO may lead to increased donor support, either generally or in relation to specific activities. Refer to economic evaluation of Scenario B1 since the analyses are identical.

#### 10.2.9 Financial implications

The differences between Scenario B1 and Scenario B2 are of an institutional nature and there would not be any change in costing as a result.

Hence, the discussion under Scenario B1 covering the continuing use of the methodology for allocation of costs; the potential for user charges; a levy on passengers or an income from air traffic control fees apply equally to Scenario B2.

#### 10.2.10 Risk analysis

As was the case for Scenarios A and B1, Scenario B2 shares the generic risks of an RSOO discussed above.

#### 10.2.11 Advantages of this Scenario

This Scenario has all of the advantages identified under Scenario B1 and additionally formalizes via an MOU the relationship between the SA-ASOO and EASA.

#### 10.2.12 Disadvantages of this Scenario

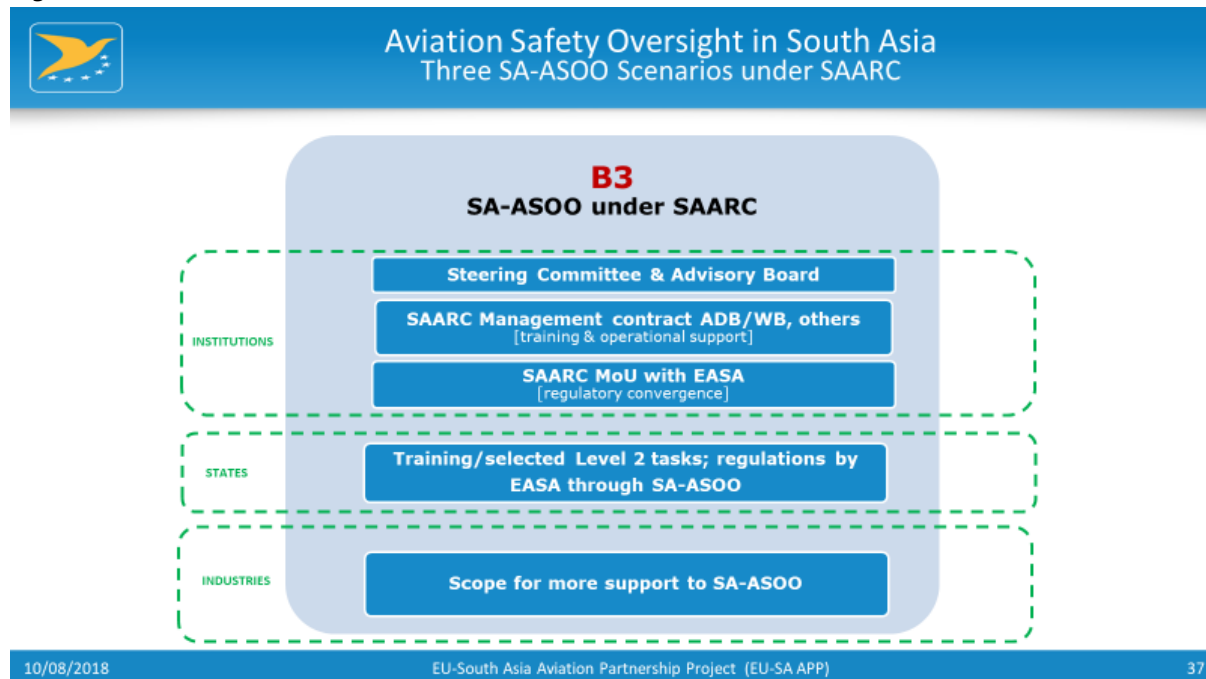
This Scenario has the same disadvantages as Scenario B1.



### 10.3 Scenario B3

In Scenario B3, COSCAP-SA transforms into the South Asian – Aviation Safety Oversight Office (SA-ASOO) continues Level 1 activities and provides considerable Level 2 activities to States on demand, under SAARC, the same as B1 and B2. Level 1 activities continue, and considerable Level 2 activities are provided to States, using the SAARC treaty as an 'umbrella' legal document. The main difference is in the management relationships which effectively remove ICAO involvement and oversight of the organisation.

Figure 10-3 : Evolution of COSCAP-SA to a RSOO - Scenario B3



#### 10.3.1 Objective

Scenario B3 is a considerable change to the previous B1 and B2 Scenarios, in particular in relation to the governance structure and financial management system. The advantage of Scenario B3 is to give the DGs of the SA States an option which provides the same outcomes as Scenario B1 or B2 (considerable Level 2 activities) while fundamentally changing the system of management and funds control. Under Scenario B3, the role previously played by ICAO (Programme Document inter alia defines organisation; funds management and recruitment) will be undertaken via other means. Effectively there will be no involvement of ICAO in management of the organisation or in funds management. The SC may however decide to invite ICAO to participate in either the SC or the Advisory Board.

Scenario B3 will legally function under the existing SAARC Treaty, but there will also be a MoU or a contract with a suitable international institution for the management of the trust fund. This MOU could involve a body such as Asian Development Bank, World Bank (SA States are members of both and both organisations have been/are actively supporting a similar RSOO, i.e. the Pacific Aviation Safety Office (PASO)). Conversely, the trust fund management could be undertaken by an equivalent body with similar reputable credentials.

As in Scenarios B1 and B2 there will be a Host Agreement with the host State. Noting once again that the permanent location of the organisation under this Scenario is not critical but is seen to be desirable to build ongoing knowledge and support through non-technical assistants at relatively low cost.

Other than these significant management changes, Scenario B3 is very similar in its operation and outcomes to Scenarios B1 and B2.

#### 10.3.2 COSCAP-SA functions to be maintained

The functions of COSCAP-SA will not be maintained however equivalent Level 1 functions would be provided by the newly established SA-ASOO organization, as well as specific Level 2 activities.

#### 10.3.3 Expanded functions: sequential implementation by CE/AREA

The functions of Scenario B3 remain the same as described in Scenarios B1 and B2.

#### 10.3.4 Core activities vs. activities on demand

The core activities vs functions on demand remain the same as described in Scenarios B1 and B2.

#### 10.3.5 Legal basis

In Scenario B3, there is no management connection with ICAO and the position of the CTA or General manager would no longer be employed by ICAO. This does not however change the legal basis for the organisation. The legal basis for the operation of the SA-ASOO will be, as in Scenarios B1 and B2, the existing SAARC Treaty and additionally a Memorandum of Understanding or contract with a specific organisation to provide an effective Trust Fund, as well as a Host Agreement with the host State. Scenario B3 may also continue the 'assistance' relationship between the SA-ASOO and both ICAO and EASA via respective MOUs.

#### 10.3.6 Governance and organisational implications

Scenario B3 proposes a further step, which mainly considers the removal of ICAO involvement in the funds management of the organization and the recruitment of staff. The Feasibility Study team proposes with Scenario B3 to have the following amended legal structure:

- The use of the existing SAARC Treaty as an umbrella to provide a legal basis for the SA-ASOO. The considerations relating to the use of the SAARC Treaty as umbrella, listed under Scenario B1, apply here as well.
- A Memorandum of Understanding or a contract with the organization undertaking Trust Fund Management.
- A Host Agreement with the State where the SA-ASOO will permanently be located.

In addition, there may be MOUs between the SA-ASOO and each of ICAO and EASA. These will define the role of each organisation in relation to the SA-ASOO. The SC should give consideration to inviting ICAO and/or EASA to participate in either the SC or the AB.

There will be a SC and an Advisory Board. Recruitment of staff will be the direct responsibility of the SA-ASOO and this may include participation by the SC or Advisory Board. This is intended to overcome often lengthy and cumbersome recruitment processes through ICAO.

### 10.3.7 Staffing requirements including STEs and status of staff

The issues regarding the status of SA-ASOO staff from time to time remain the same as under Scenarios B1 and B2 (OPAS model if ICAO is retained for assistance – not management - under a MoU may continue) but alternatively the organisation may undertake recruitment directly. This would remove both of the identified conflicts of interest which involve ICAO.

As already Stated, the recruitment is handled by the organization itself and there is no longer any involvement of ICAO. The SA-ASOO under Scenario B3 is led by an international General Manager. The selection criteria for the General Manager will include an emphasis on proven management experience as a high priority. Expertise in a specific aviation discipline will be necessary but will not be the single deciding factor for selection. It is possible that the General Manager could undertake one of the smaller aviation technical roles leaving the majority of time available for management and coordination, however the emphasis for this position will be own high level management.

It is possible, indeed likely under Scenario B3, that the General Manager will not be Flight Operations qualified. This may change the 'mix' of International long term experts but, other than this consideration there is no change to the staffing described under Scenarios B1 and B2.

The exact composition of long term international and Regional Experts depends on the skill set of the General Manager however it is likely that additional to the General Manager will be:

- An International Expert for Aircraft Accident and Incident Investigation.
- A FLT OPS expert.
- An expert for State Safety Policy/ Safety Management System (SSP/SMS).

The provision of additional short term international or Regional Experts under Scenario B3 will be exactly the same as under Scenario B1 and there is therefore no need to reiterate this.

### 10.3.8 Economic evaluation of Scenario B3

Key differences in the design parameters of Scenario B3 compared to Scenarios B1 and B2 are:

- Legal basis: No change, except that it has an MOU/contract with a Trust Fund management organization to replace the arrangement previously with ICAO.
- Governance: removes ICAO and places responsibility with the Steering Committee of DGs.
- Trust Fund management by an international financial institution (e.g. ADB, World Bank/IFC) instead of ICAO.
- CTA position no longer exists and is replaced by International General Manager and a long-term international OPS expert.

The stream of benefits remains the same as Scenario B1, the essential difference being the cost of employing an international manager. However, this position can be expected to improve the managerial performance of the SA-ASOO and provide a basis for negotiating a reduction in the administrative charge from its current 10% to, say, 5%. It also would be the case that the efficiency of the organisation would improve so that the productivity of the experts could be enhanced.

The choice between Options B1/2 and B3 therefore should be made on considerations other than the benefits and costs that have been measured.

The costings for Scenarios B1, B2 and B3 all include the installation of accounting and management reporting systems and B2 and B3 allow for an International Manager. This is important, if for no other reason, because of the need for transparency and accountability when there is increased emphasis on the recovery of costs from users. Also, it would assist future analyses for the MS to develop a capability in their financial systems to generate activity-based costing reports.

#### 10.3.9 Financial implications

The key differences are that the CTA is replaced by an International Expert in FLT OPS, with a consequent reduction in salary costs. At the same time, management responsibilities are now performed by an internationally-recruited Manager. It was assumed in the CBA that the enhanced management capability of the SA-ASOO and its institutional set-up would provide an opportunity to negotiate a lower overhead charge from its current rate of 10%. In that case, the differences in CBA results between Scenario B3 and Scenarios B1 and B2 would be insignificant.

Scenario B3 has major implications for CAAs, as it is an independent organization without a connection to ICAO and therefore uses other funding management mechanisms. Hence greater attention needs to be paid to the financing arrangements. Ensuring that the organisation can be self-sustaining will be essential for the organisation's current reform efforts and its ability to deliver on its mandate.

The finance/sustainability advice offered for Scenarios B1 and B2 also apply here. There are a number of funding options available for the SA-ASOO. The MS could continue to fund the RSOO using the methodology for allocation costs as indicated. Alternatively, user charges could apply, including a levy on passengers. Subscription or membership fees could cover fixed costs and variable fees could cover any costs associated with contracted services such as inspections.

However, this will be inadequate in ensuring the organisations financial sustainability. As an alternative to a levy on passengers, one possible approach to address this would be to secure an income stream from air traffic control fees, which "pre-pays" services the RSOO could provide. National CAA could then, for example, call on airworthiness inspectors knowing that the costs have been covered from assigned overflight income in their region. This source of funding could initially be organized within MS to provide ongoing funding for SA-ASOO.

Considering an income stream from air traffic control fees, another potential mechanism for funding is to have a unified upper airspace through SA Region that would generate revenue for safety oversight activities, similar to the ACSA/COCESNA. Although such an approach could provide significant financial and operational benefits, it would require strong political support and entail significant changes to service provision and the way that airspace is currently administered in the region. For these reasons, it is likely that such a scheme would entail a lengthy implementation process.

#### 10.3.10 Risk analysis

As was the case for previous Scenarios, Scenario B3 shares the generic risks of an RSOO discussed above in various Scenarios. The issue again is more that the degree of intensity of the risks is somewhat greater, especially in relation to funding.

Additionally, Scenario B<sub>3</sub> attracts further risks as follows:

- The major risk to completion of this Scenario is that not only additional funding will be required which some CAA might oppose, but also the assumption of greater responsibilities by the SC (and therefore DGs) as a result of independence of the SA-ASOO from ICAO.
- There will be risk involved if a totally new funding mechanism is instituted.

#### 10.3.11 Advantages of this Scenario

Because Scenario B<sub>3</sub> is quite a significant departure from previous Scenarios it is worthwhile here reiterating the advantages and disadvantages of the Scenario.

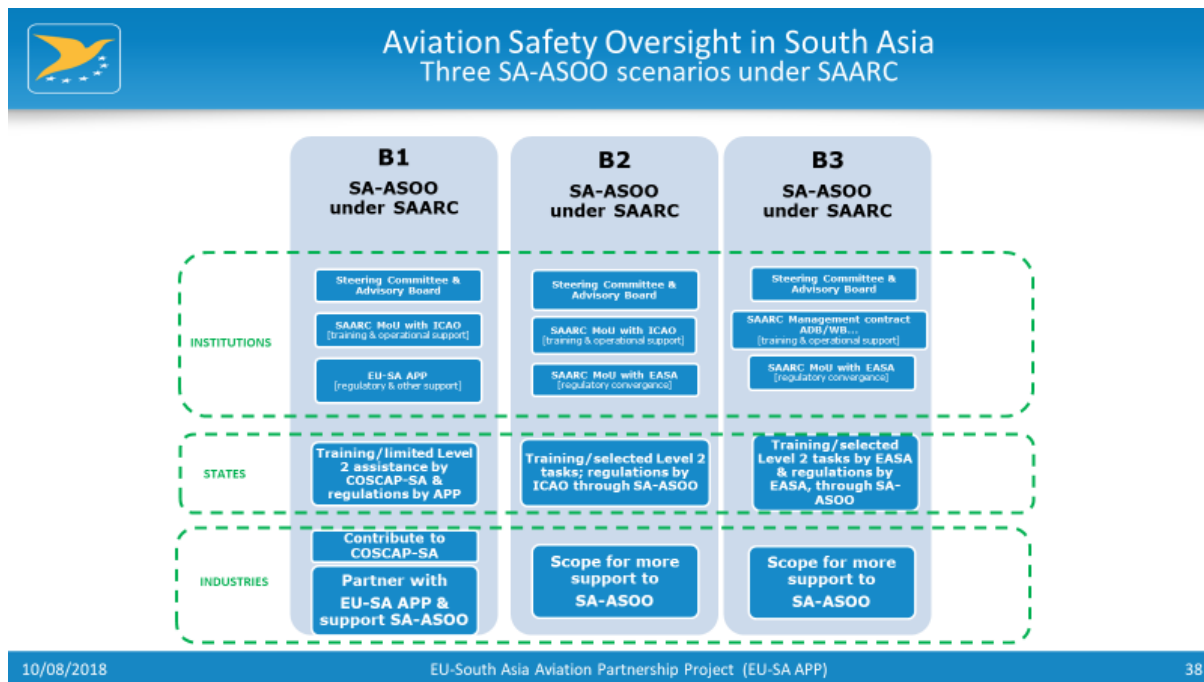
- Scenario B<sub>3</sub> as described above provides greater flexibility in recruitment and employment compared with past experience with ICAO's lengthy administrative processes.
- It places greater control in the hands of the SC and therefore the DGs, who are ultimately responsible for the outcomes provided and the benefits gained for their CAAs.
- Additional long term International Experts may be based at the SA-ASOO to cover a wider area of responsibilities.
- It addresses many of the major issues identified by the Feasibility Study team.
- It removes the ICAO based management and oversight system which some believe does not give adequate separation between the RSOO and USOAP.
- It is flexible regarding the use of its budget in order to cover also for timely support requests.

#### 10.3.12 Disadvantages of this Scenario

- It requires the agreement and full cooperation of the relevant SAARC bodies, in particular the SAARC Council of Ministers, for the institutional structure and operation of the SA-ASOO.
- It adds an additional layer of governance, namely the SAARC bodies.
- The DGs might not prefer the proposed independent organization and the additional responsibility it entails.

It requires the definition and institution of a legal basis for effective delegation for Level 2 tasks which is acceptable to the States, ICAO and the SAARC.

Figure 10.4: Comparison of three B Scenarios

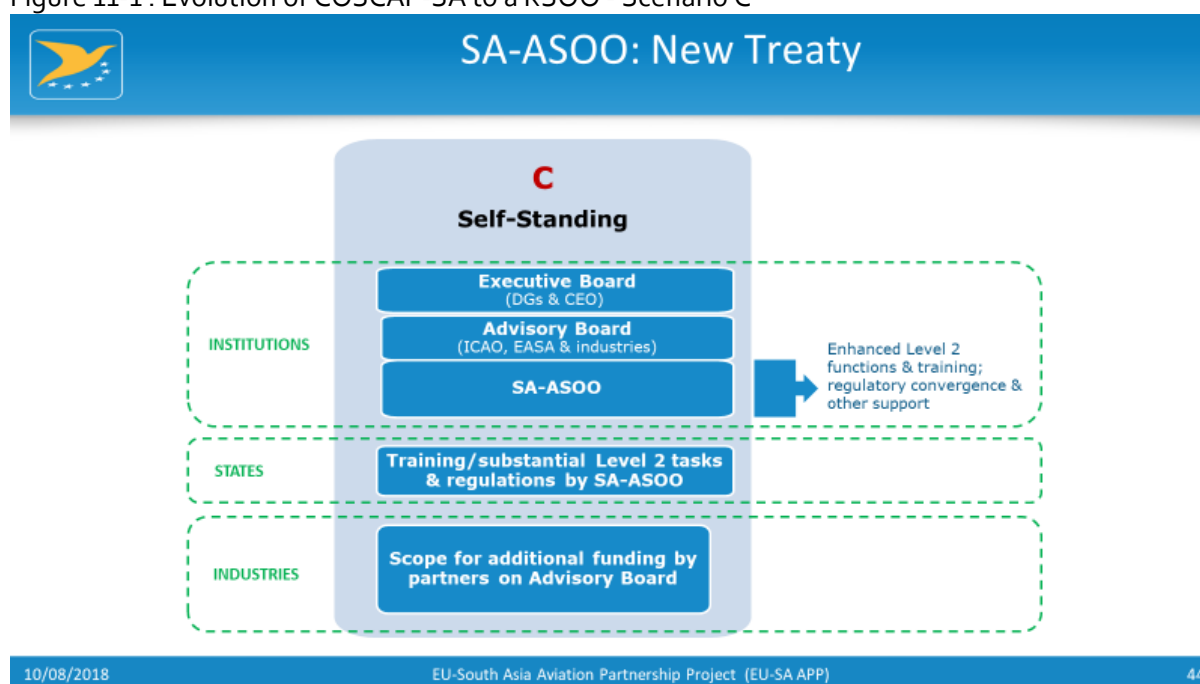


## 11. EVOLUTION OF COSCAP-SA TO A RSOO: Scenario C

### 11.1 Scenario C

In Scenario C, COSCAP-SA transforms into the South Asian – Aviation Safety Oversight Organisation (SA-ASOO), considers decreases in Level 1 activities and fully enables provision of Level 2 activities to States on demand. The fundamental difference with all previous Scenarios is that Scenario C operates under a new, self-standing South Asian – Aviation Safety Oversight Treaty. This Treaty, which would follow the model of already existing RSOOs, would come into force upon signature and would not require lengthy ratification. The provision of a specific Treaty provides a globally recognised legal identity to the organisation, strengthens its ability to provide all required RSOO functions as set out in ICAO Manual Doc. 9734, Part B, reinforces the independence of the SA-ASOO from external bodies, and avoids the problems relating to delegation and to conflict of interest as illustrated in Scenarios A and B (B1, B2 and B3) above. It also allows specific critical issues to be established at Treaty level.

Figure 11-1 : Evolution of COSCAP-SA to a RSOO - Scenario C



#### 11.1.1 Objective

Scenario C is an evolution of the 'B' Scenarios which provides similar outcomes but focuses on an self-standing legal and organisational structure. The objective of this Scenario is to give the DGs of the SA States an opportunity for an organisation that fully enables provision of all RSOO functions (Level 1, Level 2 (and possibly Level 3 activities) while preserving freedom of action of Member States to decide individually or collectively on making use of these activities. Under Scenario C, the South Asian – Aviation Safety Oversight Treaty provides an appropriate legal and organisational basis to achieve this objective, and use of the SAARC Treaty as an umbrella is therefore not required. If considered useful, the existing management, programme and audit links to ICAO can be maintained under this Scenario, or discarded.

Under Scenario C, the SA-ASOO will be fully self-standing and will therefore manage recruitment, employment tasking and funding internally. All activities will be under the supervision and control of

an Executive Board, consisting of the DGs. Regular financial audits will be undertaken by an independent third party.

Scenario C will function under a Treaty between the (participating) SA States, explained in more detail in 11.1.5 below, and there will be a Host Agreement with the hosting State of the headquarters of SA-ASOO.

#### 11.1.2 COSCAP-SA functions

The functions of COSCAP-SA will be taken over by the newly established SA-ASOO. As with the 'B' Scenarios, these functions will largely reflect COSCAP-SA Phase IV.

#### 11.1.3 Expanded functions: implementation by CE/AREA

There is initially no major outcome difference between the 'B' Scenarios and Scenario C. The differing legal basis and independence of the organisation does however give the capability of more flexible service provision and also addresses some of the ongoing issues in relation to recognition by ICAO of Level 2 work undertaken by the SA-ASOO.

Comments made previously in relation to the 'B' Scenarios are also applicable to Scenario C. The Feasibility Study team identified a large number of Level 2 activities which could be undertaken by the SA-ASOO. Consideration by CAAs visited of their specific need for assistance varied from virtually all critical elements and audit areas (disciplines) to nil. Between these two extremes there was a great variability of need identified, although many of the States were interested in substantial Level 2 assistance. In some cases, CAAs specified that Level 2 assistance in these general tasks may be limited to a specific area e.g. ANS.

Included in the areas that many CAAs identified with a high priority for Level 2 assistance were:

- Advisory and Consultative (although nominally Level 1, this particular relates to support for Level 2 activities such as surveillance).
- Regulatory (including the review, assessment recommendation for approval of industry submissions for AOC, MRO, ATO, etc.).
- Harmonisation of Regulations and Procedures undertaking the role previously managed by SARI. Note that further foreign industry funding for this role is not at all sure.
- Oversight assistance (including the inspection and audit of industry activities as part of a State surveillance program).
- Provision of ANS support including development of PBN, AIS to AIM, SAR, PANS-OPS, development of master plans and oversight of ANSP.
- Provision of support for implementation of SMS/SSP requirements, including support to the ANSP on how to implement the SMS and to the CAA to audit SMS implementation.
- Certification and surveillance support for AGA including initial certification of aerodromes using SMS.
- Enforcement, specifically relating to investigation of identified safety issues and recommendation for action.

Note that these identified core tasks address only the Level 2 tasks within these fields and do not consider the many ongoing related Level 1 tasks which the SA-ASOO will continue to provide in parallel.



Under Scenario C, in addition to the high priority activities mentioned by individual States, certain central functions could also be coordinated through a combination of SA-ASOO staff (International and Regional), short-term specialists (STE) and the use of an enhanced SACBM. As these activities develop they could be considered as ongoing core business of the SA-ASOO. These activities could include:

- Provision of Flight Ops support – especially for first of type or (locally) unknown aircraft.
- Establishment and maintenance of central data base for foreign operator ramp checks (building a network of ramp safety assessment data with regular safety information submitted to participating States, similar to the existing SAFA system).
- Providing coordination with activities of international organisations and their programs (i.e. ICAO TCB, EU/EASA, IATA, Industry, National development agencies, etc; noting that FAA is presently not participating in such support).
- The independence under this Scenario provides great flexibility for the organisation to react in a timely manner to requests from States, while still under the control of the Executive Board.

#### 11.1.4 Core activities vs. activities on demand

As already Stated in previous Scenarios, it is of vital importance to proceed with the harmonisation of regulations and procedures across many disciplines to facilitate regionally based assistance to States. This task has been performed through SARI over the last 10 years, mainly relating to airworthiness. During the initial research State visits, there were variable views on how effectively this task had been undertaken, although all States agreed with the importance of the task.

At this time the situation for ongoing funding of SARI is not clear. In relation to the 'B' Scenarios and Scenario C, this Feasibility Study assumes that further SARI funding will be available and that some such funding can be directed to harmonisation of regulations and additional Level 2 tasks.

As can be seen from the various tables in the introduction, the diversity and depth of Level 2 tasks requested by various CAAs, under a future SA-ASOO structure, made it difficult to consider which are the higher priorities. Clearly however a significant number of CAAs have Stated their willingness to seek support in relation to some specific 'core' areas, which are covered above.

As with previous Scenarios and additional to the 'core tasks' of the SA-ASOO, consideration must be given to the need to cover activities of either a short term or very specialised nature which are requested by States. These activities can be considered as 'on demand', rather than core.

An example of a specialised activity within the flight operations or airworthiness area could be the need for a Flight Operations Inspector with helicopter qualifications and experience. This need was mentioned by some CAAs as a growing area within their respective industry and one which they presently had no expertise to cover. It is likely that the need for such an inspector/s may be short term and that is not cost effective for any one CAA to employ full time such an individual. An SA-ASOO however could provide a short term expert able to support 2-3 CAAs or more in a coordinated manner.

Such a Level 2 activity would be outside the core tasks of the SA-ASOO due to the relatively small overall requirement. Additionally, such an SME could provide training (including OJT) within the area of certification/approval and inspections as an adjunct to the Level 2 activities, thereby increasing

capabilities within the CAAs. It is a consideration under the 'B' Scenarios and Scenario C such an 'on demand' activity may be provided by the SA-ASOO on cost-recovery basis funded by the CAAs with the specific need.

Tasks that may be considered as 'on demand' for specific CAAs include:

- Identified short-term requirements driven specifically by a new aircraft classification or aircraft type (e.g. helicopters or a new model of transport category aircraft with specific requirements) or industry system (e.g. Electronic Flight Bags).
- Specific certification or initial approval tasks may be undertaken by the RSOO and aligned with OJT to provide a transfer of skills to the CAA as an additional benefit. Examples of this could include the initial approval of a Part 145 MRO with capabilities beyond those presently undertaken in the State or the setup of a Part 60 or 66 Examination and Licensing system. These examples are also good candidates for multiple State involvement providing both savings in the scale of activities and harmonization of processes.
- Specific surveillance or oversight tasks that may be undertaken by the RSOO and aligned with OJT to provide a transfer of skills to the CAA as an additional benefit. Examples of this could include Dangerous Goods and Cabin Safety, etc.
- Provision of implementation assistance for ECCAIRS.
- Establishment, maintenance and oversight of AIG capability including coordination of AIG go-teams (the qualified members of the team(s) could be located at their home base but should be available on short notice, guaranteed for rapid reaction by contract with their employers).
- Provision of support for the certification and surveillance of medical practitioners or medical centres.
- Provision of support in legal matters concerning international aviation law/treaties.

The independence of the SA-ASOO under this Scenario provides great flexibility to the organisation, while still under the control of the Executive Board. For example, training activities (classroom training for inspectors of various faculties) could be separated and transferred to a SA Aviation Training Academy accessible to any interested professional party, enabling industry to send employees for advanced regulatory and management training. Such Training Academy could be organised as self-sustainable non-profit organisation living of tuition fees. (Role model could be the JAA Training Organisation – even a close cooperation would be possible)

Although the listing of potential 'on demand' activities shown above is very similar to that shown in previous Scenarios, the difference is that some of these 'on demand' activities may be able to be more routinely handled and become 'core activities' under the B Scenarios and Scenario C. This is because of the greater numbers and breadth of technical staff available under these Scenarios.

Additionally, the inherent flexibility under Scenario C allows more rapid response to requests by MS.

It should also be noted that the provision of such SME support to a number of States has an additional advantage of standardisation as the approach and resultant standards will be exactly the same for this specific issue in each State.

#### 11.1.5 Legal basis

The legal basis under Scenario C would be a focused self-standing Treaty, with specific RSOO objectives, activities and a mandate that would establish a dedicated regional safety oversight organization with clear international legal personality.

The creation of SA-ASOO under a self-standing Treaty would permit it to become a recognized safety oversight organisation under the envisaged global aviation safety oversight system (GASOS) which is under Study in ICAO. GASOS would provide States with an effective and recognized system for the delegation of safety oversight functions to ICAO-recognized RSOOs, including an SA-ASOO under Scenario C.

An international treaty for SA-ASOO does not need to be newly drafted. It can emulate the Banjul Accord, which was set up to carry the respective RSOO in its region (BAGASOO). Its objectives, provisions and structure are fully suitable for the purposes of setting up a new regional organization named SA-ASOO.

It should be underlined that the objectives, provisions and structure of the Banjul Accord were examined and approved by ICAO, through its Legal Bureau, before being approved and signed by its Member States. Therefore, the text of the Banjul Accord can be regarded as a known entity. It requires only minimal adjustments to be able to carry across to SA-ASOO.

COSCAP-SA in its present form is not in a position to carry out safety oversight functions beyond Level 1 on behalf of its Member States, in particular inspections, due to the difficulties which have been encountered with recognition by ICAO Auditors of delegation of authority by those States to COSCAP-SA. Essentially, such difficulties result from two factors:

- the lack of international legal personality of COSCAP-SA, like any other COSCAP, which could allow it to accept delegation of authority by means of a valid international agreement with the delegating State.
- the use of experts provided by ICAO, and considered as ICAO employees, to carry out safety oversight functions, including inspections, on behalf of COSCAP-SA Member States, a situation which is perceived as a conflict of interest.

Both of these difficulties would be solved with a self-standing legal and organisational structure as outlined for Scenario C. Furthermore, the cooperation among the concerned States through the establishment of a dedicated institutionalized regional organization like SA-ASOO enables the harmonization and standardization of safety oversight requirements among its Member States and makes it suitable to become part of the envisaged GASOS.

In these circumstances, the establishment of an international regional organization with international legal personality, under a self-standing agreement, comprising the current COSCAP-SA Member States, to be designated as SA-ASOO would have major advantages and benefits.

Use of a self-standing Treaty relevant to the required legal basis and desired outcomes of the organisation allows the inclusion during drafting of specific clauses addressing previously identified issues. These include but are not restricted to:

- Provision of an international legal identity of the SA-ASOO.
- Clarification of the legal basis for SA-ASOO activities undertaken on behalf of MS.
- Clarification of the legal basis of SA-ASOO staff while undertaking Level 2 activities on behalf of MS.
- The ability of SA-ASOO to enter into high level arrangements and contracts in its own right.
- The ability to negotiate and enter, via a Host Agreement, a tax and/or duty free status for the organisation.

The Treaty amongst participating States will define the role, tasks, identity, privileges and responsibilities of the organisation. Additionally, there will be:

- A Host agreement with the State where the SA-ASOO will be permanently located.
- A Board of Directors made up of the DGs to provide oversight over management of the organisation.
- An Advisory Committee, consisting of the Board Chair and selected DGs plus other organisations as agreed; which may also assist with recruitment, etc.
- MOUs as agreed with external organisations, if desired, such as ICAO and EASA.

#### 11.1.6 Acceptance/signature of Treaty by States

The Banjul Accord did not require ratification for entry into force. Signature by its Member States and Confirmation by the Council of Ministers of Member States was sufficient. This is consistent with the provisions of the Vienna Convention on the Law of Treaties of 1969 which regulates this matter. Note that multilateral agreements are deemed to be under this Convention, even if an individual States has not ratified it. For background information, the Banjul Accord, which set up the BAGASOO organisation was completed in a matter of months. A copy of the BANJUL Accord is included as Annex B to this report.

Similarly, a new South Asian Aviation Safety Treaty would also not require lengthy ratification by Parliaments. It could enter into force upon Adoption by a Diplomatic Conference and Confirmation by the Council of Ministers, composed of Ministers (or Permanent Secretaries) of Transport/Civil Aviation. This process would largely be within the ambit of Transport Ministries or equivalent which would allow rapid progress. It is pertinent here to consider the window of opportunity within in SA which is presently provided by the recent Beijing Declaration deliberations and signing.

#### 11.1.7 Organisational implications

Scenario C provides for a self-standing organisation which has no governance or management interface with ICAO or other organisations unless such interface is decided by the Board of Directors. This does however mean that the organisation must include processes and procedures to ensure appropriate organisational and financial management which is transparent and auditable for results.

This requires a management structure based on a solid document system with internal quality and safety management processes and a financial management system with stringent rules allowing for both Annual costs and 'on demand' services costs to be received.

A regular and independent financial audit system is also required.

#### 11.1.8 Staffing requirements and status of SA-ASOO staff

The Feasibility Study team was informed by all States visited that an International Expert is preferred to lead the management team as the General Manager. The selection criteria for the General Manager will include an emphasis on proven management experience as a high priority. Expertise in a specific aviation discipline will be necessary but will not be the single deciding factor for selection. It is possible that the General Manager could undertake one of the smaller aviation technical roles leaving the majority of time available for management and coordination, however the emphasis for this position will be on high level management capabilities.

It is possible, indeed likely under Scenario C that the General Manager will not be Flight Ops qualified. This may change the 'mix' of International long term experts. International long-term experts as required will undertake the provision of Level 2 activities under Scenario C. The Feasibility Study team proposes to have a General Manager and, in addition:

- An International Expert for Aircraft Accident and Incident Investigation.
- A FLT OPS expert.
- An expert for State Safety Program/ Safety Management System (SSP/SMS).
- An ANS expert capable of supporting ANSP oversight.
- An Aerodrome certification expert.
- An expert on SAFA and other databases.

In addition it is proposed to have a pool of Regional Experts composed of:

- A Licensing expert.
- A Harmonisation/Implementation expert (SARI?).
- An Airworthiness expert, noting that each of these may be provided on short term contract or from the SA Capacity Building Matrix.

Short-term International Experts would need to have the following background:

- European Co-ordination Centre for Accident and Incident Reporting Systems (ECCAIRS).
- Medical Issues in Aviation (AVMED).
- Legal.

The continuing and expanded use of the SACBM will be included under Scenario C.

Under COSCAP recruitment and contracting was done by TCB for contracts of maximum one-year duration. As International Experts need to be based at the location of the SA-ASOO a three-year contract basis is recommended in order to provide job guarantee. All positions for permanent staff are considered to be necessary for longer periods of time. A system probation of six months will be used with all contracts to ensure the appropriate fit and capability of the individual during early contract days.

Under Scenario C, the employment of STEs would be on an 'as required' basis to fulfil roles which cannot be undertaken effectively either by the full-time staff of the SA-ASOO or the use of experts through the SACBM.

The achievement of a self-standing Treaty allows for the status of staff to be fully defined as SA-ASOO staff in a legal, binding document and overcomes potential difficulties which are found in all other Scenarios. Under Scenario C, the status of employees of the SA-ASOO will depend on the type of responsibilities they are given. When tasked with Level 2 activities for any State, the SA-ASOO employee (Full time or STE) or an expert operating under the SACDM and coordinated by the SA-ASOO will have the powers as identified by or under the Treaty. These will serve to execute functions which are delegated by Member States to the SA-ASOO. The Treaty will provide for the powers and responsibilities of the staff member while undertaking this role.

Long-term staff (international, regional and local) would be based at the office and coordinate activities in their respective areas under utilisation of short term experts and the SACBM described in previous Scenarios.

#### 11.1.9 Economic evaluation of Scenario C

Scenario C is distinguishable from the previous "B" Scenarios in its institutional setting under its own treaty and a considerable expansion and reorientation of its capabilities. It would have 6 long-term International Experts (instead of 3), and the number of short-term International Experts would increase from one to 3. Training activities (classroom training for inspectors of various faculties) would be assigned to a SA Aviation Training Academy, but there would be more on-the-job training. The administrative and travel costs were adjusted accordingly. Although it would not be necessary to pay a fee for Trust Fund management under Scenario C, it was assumed that overheads would remain at 5% of total costs.

As a result, the total cost over the 5-year Programme increases by \$11.5 million over the Base Case. However, the benefits increase by \$59.1 million. and the Benefit/Cost ratio is 5.2.

For the reasons mentioned above, the B/C ratios for the Scenarios should not be compared directly. The incremental cost of Scenario C over Scenario B<sub>1</sub> is \$5.8 million. It adds \$36 million to net benefits. On that basis, the additional expenditure on Scenario C compared to Scenario B<sub>1</sub> yields a Benefit/Cost ratio of 6.16. That is, for every extra dollar invested in an expanded RSOO with its own Treaty would generate \$6.16 in benefits to the MS.

#### 11.1.10 Financial implications

The total cost of Scenario C over the 5-year Programme amounts to \$14.07 million. It has been estimated that each dollar vested by the MS in the RSOO would deliver \$5.16 in benefits by reducing costs incurred by the MS in order to provide the same services themselves.

Considering that the cost of Scenario C is 5.4 times that of the Base Case, and 70% more than the cost of Scenario B<sub>1</sub>, a choice to adopt Scenario C would involve a significantly greater commitment of funds. Nevertheless, the approach to financing can be similar to that discussed with Scenario B<sub>3</sub>. Member States can contribute the funds directly, after exploiting the opportunities for donor support, or they can adopt a system of recovering costs from users. Despite the steep rise in outlays, the fact is that the amount that would need to be collected, say, from each international passenger would amount to a few cents.

#### 11.1.11 Risk analysis

Scenario C requires the Ministries of Transport and Ministries of Foreign Affairs in Member States to agree on, adopt and sign a self-standing treaty to establish the SA-ASOO. Ratification is not required if the model of the Banjul Accord is followed. Care will need to be taken to ensure that valuable opportunities to pursue regional cooperation are not postponed or lost during the development phase.

Scenario C also invests more in shared IT platforms, notably for SAFA. The risk here is that MS might not be able to align their own IT systems to a common platform, thereby not benefitting from potential benefits.

#### 11.1.12 Advantages of this Scenario

- Strong organisational and legal status providing a basis for full-fledged RSOO functions and a large degree of autonomy and flexibility for the Board of Directors.  
It allows a delegation from Member States to SA-ASOO, which will then fulfil the delegated functions by making use of its own structures and processes.
- This is the only Scenario which allows for the clear legal definition of the status of SA-ASOO employees undertaking Level 2 tasks for a State.
- The Option provides a solution for the ever-simmering AIG problem.
- It has the potential to address all issues identified by the Feasibility Study team.
- Has the most potential to raise the EI of all States to acceptable levels.
- Combination of resources gives access to existing expertise in the region.
- A separate Training Organisation may deliver standardized training for regulators and industry managers alike and provide a solution for the region.
- This Scenario could be seen as an aspirational goal which could grow over time after the adoption of one of the other Scenarios as a transitional phase.
- There is the capability for further development into RSOO level 3 if required by specific States.

#### 11.1.13 Disadvantages of this Scenario

- It requires initially coordination with the Ministries of Foreign Affairs of COSCAP-SA States, in order to have the text of the Treaty approved, adopted and signed. The DGs of MS may have some difficulty in convincing their Ministries of Foreign Affairs of the value of entering a stand-alone Treaty.
- This Scenario will likely require a greater degree of documentation (internal regulations, procedures, financial matters) to be developed than the other Scenarios.
- The DGs may not wish to be involved with the degree of independence and additional responsibility that Scenario C provides.
- The States may not like standardisation of technical issues and reduced national influence.

## 12. COST-BENEFIT ANALYSIS – DETAILED ANALYSES

### 12.1 Methodology and Approach

Cost-benefit analysis (CBA) has a well-established methodology grounded in economics, engineering and public policy. Mostly, it has been used to evaluate infrastructure projects, but it has been shown to be a useful tool to analyse policy decisions and programmes. When the technique was first being applied in road planning some five decades ago, the practice of accounting for the benefits of improved safety began to be incorporated into the analyses. Later, CBA began to be applied in the evaluation of air navigation services improvements and it was possible to draw upon a robust body of theory and practice. Eurocontrol, the Federal Aviation Administration and the Civil Aviation Safety Authority (Australia) all show how to incorporate the benefits of improved safety in presenting cases for spending on air navigation infrastructure.<sup>13</sup>

However, CBA has yet reached the same level of maturity in evaluating the benefits of improved regional safety oversight.<sup>14</sup> Conceptually, that would require drawing a quantifiable link between the activities of the RSOO and the LEIs of ICAO SARPs, and an additional quantifiable link between the LEIs and the value they deliver to society in terms of improved safety outcomes.

What has been done in the past is to apply the accounting framework of CBA to compare the costs of providing training, technical assistance, and developing regulations as well as manuals and guidance materials. In other words, the analysis gave answers to the question “have the Member States been made better off as a result of their participation in COSCAP-SA?” This was done first by COSCAP-SA in 2004 and its conclusions are summarised below<sup>15</sup>. Notably, the same approach was adopted in 2009 by the Regional Safety Oversight Cooperation System (SRVSOP) on behalf of its 12 Member States from South and Central America. The SRVSOP Study was updated in 2015.<sup>16</sup>

The purpose of carrying out a CBA is to assist decision-makers, and the studies cited above certainly did this. But it must be remembered that they dealt only with the benefits of improved efficiency of delivering safety oversight. These include the benefits of sharing resources and achieving economies of scale in areas where the individual Member States require assistance.<sup>17</sup> But the methodology fails to measure the effectiveness of the regional approach and thus under-estimates the full benefit of an RSOO arrangement. We comment on these “intangible” benefits below.

However, it is worth pointing out that there have been studies about the impact of aviation disasters on national economies. For States that rely heavily on international tourism, the value of having a good reputation for safety cannot be denied. There are several States in Asia and Pacific that have experienced downgrades in their Category Ratings by the FAA and inclusion of their airlines on the

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<sup>13</sup> The methodology, to put it in simple terms, applies parameters for the value of a “statistical life” in the case of fatalities, and similar parameters for injury to persons and damage to property. These, together with assessments of risk and degree of severity allow analysts to incorporate safety impacts into CBA.

<sup>14</sup> Note the attempts of a decade ago to develop methodologies and applications as reported in Noce, E. 2010. *Aviation Safety Improvement Using Cost Benefit Analysis (ASICBA)*. Instrument: STP Specific Targeted Research Project. Thematic Priority: FP6-2003-AERO-1. Final Publishable Report.

<sup>15</sup> As reported in DP-3 “Cost versus Benefit”, 13<sup>th</sup> Steering Committee Meeting, COSCAP-SA, New Delhi, India, 29 November – 1 December 2004.

<sup>16</sup> SRVSOP 2015. *Report on the Update to the Cost-Benefit Analysis of the Regional Safety Oversight System*.

<sup>17</sup> See, for example, Jennison, M. 2006. Regional safety oversight bodies deliver economies of scale and greater uniformity. *ICAO Journal*, 61(1), 9-13.



EU's safety list. These consequences of a failure to achieve satisfactory LEIs can have significant short- and long-term effects on national airlines, on their tourism markets and on their economies.<sup>18</sup>

With those caveats we proceed using, to the maximum extent, the methodology applied by COSCAP-SA and SRVSOP. This implies a basic assumption that, in the absence of the RSOO, the Member States would have had to achieve the same outcomes on their own initiatives. So, for example, if the RSOO did not offer a training event then the MS would have had to arrange the training some other way. If the RSOO provides Technical Assistance, the alternative for the State would have been to engage an ICAO-appointed specialist or to obtain one on the open market. Thus, the net benefits amount to the savings that the RSOO provides each Member State for performing a defined set of tasks.

The inputs required to perform a CBA on this basis include details about the activities of the RSOO as well as valuations on the activities. In attempting to carry out a retrospective evaluation of COSCAP-SA for the past two decades, the Study team found that it was not able to access the data required to update the COSCAP-SA 2004 Study. For example, detailed information about the number of training courses, the number of attendees by CAA and by industry, duration of the course, and the place where the courses were held was available up until 2008. On that basis it was possible to extrapolate the training benefits of COSCAP-SA to cover Phases I and II, but not for later periods. As for the other categories of benefits, there was insufficient information to enable a replication of the 2004 CBA. Instead, the Study team quantified what was possible, it presents an analysis for a "typical" year during Phase IV, and it summarises information about COSCAP-SA's achievement of the goals that were set for it. Collectively, this information presents a strong case for continuation for the regional cooperation initiative. It also indicates a need to upgrade management systems.

## **12.2 Evaluating Past Performance of COSCAP-SA**

### **12.2.1 Phases I and II**

The CBA presented in DP-3 at the 13<sup>th</sup> Steering Committee Meeting made the following assumptions:

- The value of one person's training for one day was US\$300 when conducted abroad, but was worth \$400 when carried out in-country, there being additional savings in travel and DSAs.
- The cost of producing Guidance Manual for Inspectors was valued at between \$15,000 to \$30,000 based on the importance of the guidance material and the likely effort to develop the same.
- The production of regulations would normally have required each Member State to engage a consultant for four months of consultant time, consultants being costed out at \$12,000 per month.
- COSCAP-SA International Experts provided OJT / Technical Assistance at a specific cost of \$600 per day, whereas the Regional Experts were charged at one-third of this rate.

On this basis the following analysis was presented to the COSCAP-SA Steering Committee. The total contributions of the Member States amounted to \$1.55 million, whereas it was estimated that they received \$6.7 million in measurable savings. That is, total benefits were 4.32 times the

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<sup>18</sup> See, for example, Manuela, W.S. Jr. and de Vera, M.J. 2015. The impact of Government failure on tourism in the Philippines. *Transport Policy*, 43, 11-22.

costs actually incurred, and each Member State could be shown to have gained from its participation in COSCAP-SA.

Table 12-1 : Cost-Benefit Analysis COSCAP-SA to November 2008 (Thousands of US dollars)

Member State	Training	Manuals	Regulations	TA + OJT	Total	MS Contributions	B/C Ratio
Bangladesh	\$416.5	\$150.0	\$48.0	\$58.8	\$673.3	\$172.9	3.89
Bhutan	\$161.3	\$150.0	\$48.0	\$32.2	\$391.5	\$52.8	7.41
India	\$1,709.8	\$150.0	\$48.0	\$80.0	\$1,987.8	\$525.0	3.79
Maldives	\$355.1	\$150.0	\$48.0	\$71.7	\$624.8	\$155.9	4.01
Nepal	\$796.0	\$150.0	\$48.0	\$77.6	\$1,071.6	\$139.9	7.66
Pakistan	\$895.7	\$150.0	\$48.0	\$40.8	\$1,134.5	\$238.1	4.76
Sri Lanka	\$486.9	\$150.0	\$48.0	\$140.4	\$825.3	\$268.0	3.08
All States	\$4,821	\$1,050	\$336	\$502	\$6,709	\$1,553	4.32

In addition, the following qualitative benefits were identified:

- Availability of high quality expertise familiar with the sub-region to respond quickly to safety oversight concerns.
- Network with other State and Organisations and greater harmonization and coordination.
- Production of quality documents, manuals, etc.

This CBA appears to have been updated. DP-2 "Progress Review" presented to the 17<sup>th</sup> Meeting of the Steering Committee held at Bangkok, 6-8 November 2007 Stated that:

*"From the statistics of benefit versus cost for each State, it was easily discernible that all States have gained from the Programme though in varying degree. The average benefit received by the States is 4.74 times the contribution."*

As a point of comparison, the following table summarises the evaluation of SRVSOP. The overall Benefit/Cost Ratio was calculated to be higher in South Asia, but both demonstrated that membership of an RSOO returns significantly more than it costs. It should be borne in mind that there is a difference in the numbers of MS in COSCAP-SA and SRVSOP and that the scope of activities varies. Clearly, SRVSOP has been heavily engaged in harmonisation of regulations and it was estimated that this, as well as certification activities, generated very high Benefit/Cost ratios despite the large commitment of funds – average almost US\$2 million per year over a 15-year period.

Table 12-2 : Summary of Updated CBA SRVSOP - 2001 to 2015 (in millions of US dollars)

Products	Cost Without the SRVSOP	Cost With the SRVSOP	Benefits	B/C
Training	\$7.03	\$2.60	\$4.42	1.7
Assistance to the States	\$0.70	\$0.37	\$0.33	0.9
Production of LARs	\$36.74	\$7.57	\$29.17	3.9
Certification of AMOs	\$1.97	\$0.42	\$1.54	3.6
Total	\$46.43	\$10.96	\$35.47	3.2

For the purpose of this Feasibility Study, an attempt has been made to update the earlier CBA to the end of Phase II. Insufficient information was available to recalculate the benefits arising from the production of manuals and guidance materials, the preparation of regulations, and technical assistance. However, it was possible to update the benefits from the training programme as indicated in the following table. This is likely to be an under-estimate because we continued to use the same valuation of training days that was used in 2004. The total amount of contributions by the Member States was \$2.6 million for Phases I and II, whereas the estimated benefits of the training provided amount to \$8 million. This implied a Benefit-Cost ratio of 3.0. Thus, just on the training programme alone, the Member States were more than recovering the subscription costs. Note that approximately half of the training in-country was for the benefit of industry.

Table 12-3 : Value of Training – COSCAP-SA Phases I and II

State	Value of Training			MS Contributions	B/C Ratio
	Abroad	In-Country	All Training		
Bangladesh	\$95,100	\$603,200	\$698,300	\$292,865	2.4
Bhutan	\$89,400	\$137,600	\$227,000	\$92,752	2.4
India	\$34,500	\$2,460,000	\$2,494,500	\$819,734	3.0
Maldives	\$95,700	\$583,800	\$679,500	\$220,895	3.1
Nepal	\$74,100	\$1,422,000	\$1,496,100	\$269,671	5.5
Pakistan	\$21,300	\$1,372,000	\$1,393,300	\$549,335	2.5
Sri Lanka	\$75,600	\$936,800	\$1,012,400	\$394,631	2.6
Total	\$485,700	\$7,515,400	\$8,001,100	\$2,639,883	3.0

## 12.2.2 Phase III

### 12.2.2.1 Costs incurred by States participating in COSCAP-SA during Phase III

At the commencement of Phase III, it was envisaged that the Member States would collectively, over the five-year period, contribute \$2.8 million. In the event, their contributions amounted to \$1.8 million and, for various reasons, COSCAP-SA was not as active as it had been in previous years. It also became clear that the allocation of contributions was not sustainable, especially for those States with lower levels of aviation activity.

Table 12-4 : Budgeted and Actual Contributions by Member State – Phase III

State	Budgeted	Actual
	Contributions	Contributions
Bangladesh	\$419,140	\$243,242
Bhutan	\$268,627	\$99,900
India	\$563,679	\$381,525
Maldives	\$362,630	\$100,000
Nepal	\$419,500	\$266,862
Pakistan	\$444,128	\$394,590
Sri Lanka	\$362,630	\$268,892
All States	\$2,840,334	\$1,755,011

Sources: 17<sup>th</sup> Steering Committee Meeting, DP-8 "Budget and Funding"; 26<sup>th</sup> Steering Committee Meeting, Appendix 1 DP-5 "Contributions-and-Budget".

#### 12.2.2.2 Benefits derived by States participating in COSCAP-SA during Phase III

It was possible to calculate a "partial" Benefit/Cost ratio for each Member State for the first year of Phase III, using the same parameters as previously. A total of 205 days of training were provided abroad to the Member States and 1,411 days of training were provided in-country in 2008. The value placed on this is \$625,900. In addition, the Programme's Technical Experts in the fields of Air Traffic Services, Flight Operations, Airworthiness and Aerodromes spent 181 days in-country on Technical Assistance Missions.<sup>19</sup> This work included reviewing Regulations or Implementing Standards, Inspector Training including OJT, Review of States Guidance Material, Participation at Air Operator Certification, Conducting Surveillance activities etc. in addition to provision of expert advices on various technical and administrative matters.

This was valued, as before, at US\$600 per day, to give a total valuation of \$108,600. However, the reported data did not disclose how much of the Experts' time at the Programme Headquarters in Sri Lanka was devoted to Technical Assistance. An amount of \$50,000 was added to the total to account for this.

Bearing in mind that the valuations placed on training and technical assistance were those prevailing in 2004 and therefore would be under-valuing these benefits. Even so, a comparison of the benefits from these two COSCAP-SA activities alone against the contributions provided by the Member States in 2008 indicates that the savings were 2.4 times the amounts paid into the Trust Fund. Note that the Experts spent another 149 days attending training events and seminars and other Programme-related activities.

In addition, COSCAP-SA revised five of its previously issued guidance materials and the following new manuals<sup>20</sup>:

- Generic State Safety Programme (SAAP-375).
- Model Regulations on Foreign Air Operator Certificate Validation (SAAP-400).
- Manual of Procedures for Foreign Air Operator Certificate Validation (SAAP-425).
- Model Regulations on Dangerous Goods (SAAP-450).
- Dangerous Goods Inspector Manual (SAAP-475).
- Manual of Procedures for Approved Training Organizations (SAAP-500).

The CBA carried out on COSCAP-SA in 2004 placed a value on each document of between \$15,000 and \$30,000 for each Member State, on the basis that this is what it would have cost them to prepare the same material independently. If it is assumed that the value of this set of manuals to each Member State is \$135,000, then the total benefit would increase by \$945,00 and the Benefit/Cost ratio would rise to 5.4.

Thus, it may be concluded that COSCAP-SA continued in Phase III with a flow of tangible benefits to the Member States that outweighed the cost of their contributions by a factor of 2.4, not including other activities of the Programme that were difficult to quantify but which were nevertheless of value.

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<sup>19</sup> 18<sup>th</sup> Steering Committee Meeting, Bangkok, 17-19 February 2009, DP-1: "Review of Progress".

<sup>20</sup> 18<sup>th</sup> Steering Committee Meeting, Bangkok, 17-19 February 2009, DP-4 "Adoption of the COSCAP Revised Guidance Materials".

Table 12-5 : Training and Technical Assistance Provided in 2008 with Benefit/Cost Ratios

State	Training		Technical Assistance		MS Contributions	B/C Ratios
	Days Abroad	Days In-Country	Value of Training	TA Days	Value of TA	
Bangladesh	17	88	\$40,300	48	\$28,800	2.3
Bhutan	18	30	\$17,400	20	\$12,000	2.9
India	26	282	\$120,600	26	\$15,600	1.5
Maldives	26	57	\$30,600	17	\$10,200	1.6
Nepal	21	91	\$42,700	37	\$22,200	2.2
Pakistan	10	686	\$277,400	33	\$19,800	4.0
Sri Lanka	87	177	\$96,900		\$50,000	2.3
Total	205	1,411	\$625,900	181	\$158,600	2.4

### 12.2.3 Phase IV

#### 12.2.3.1 Costs incurred by States participating in COSCAP-SA during Phase IV

The budget approved for Phase IV at the 22<sup>nd</sup> COSCAP-SA Steering Committee Meeting planned on the basis that the Member States would contribute \$2.5 million over the coming five-year period. Actual contributions to the Trust Fund were slightly higher, at \$2.8 million.

This does not include the costs incurred by the Member States to participate in COSCAP-SA including:

- Expenses incurred by the State hosting the COSCAP-SA headquarters.
- Attendance at meetings, training events, workshops and seminars.
- Specialists provided to support the Technical Assistance programme under the auspices of the South Asia Capacity Building Matrix (SACBM).

Table 12-6 : Budget for Phase IV as Approved at the 22nd COSCAP-SA Steering Committee Meeting

State	Financial Years ending in					Total
	2014	2015	2016	2017	2018	
Bangladesh	\$75,529	\$78,550	\$80,907	\$82,525	\$83,350	\$400,861
Bhutan	\$26,250	\$27,300	\$28,119	\$28,681	\$28,968	\$139,318
India	\$107,898	\$112,214	\$115,580	\$117,892	\$119,071	\$572,655
Maldives	\$26,250	\$27,300	\$28,119	\$28,681	\$28,968	\$139,318
Nepal	\$75,529	\$78,550	\$80,907	\$82,525	\$83,350	\$400,861
Pakistan	\$87,936	\$91,453	\$94,197	\$96,081	\$97,042	\$466,709
Sri Lanka	\$76,608	\$79,672	\$82,062	\$83,704	\$84,541	\$406,587
Total	\$476,000	\$495,039	\$509,891	\$520,089	\$525,290	\$2,526,309

Nor do these statistics account for the work on regional harmonisation of regulations through SARI, including again the expenses borne by the Member States.

COSCAP-SA has been able to draw on additional resources provided by donors and industry partners (e.g. air travel for COSCAP-SA experts provided free of charge by the airlines). However, their relevance lies in the financing of COSCAP-SA rather than an analysis of the benefits received versus the expenses incurred by the Member States.

### 12.2.3.2 Benefits to States arising from their participation in COSCAP-SA

The benefits to Member States of participation in COSCAP-SA are variously described in various sections of the Report. In particular this is addressed at Paragraphs 12.2.3.4, 12.2.3.6, 12.2.3.7

### 12.2.3.3 Activities

The activities performed by the COSCAP-SA Programme in Phase IV can be classified under the headings:

- Meetings, Conferences and Documentation.
- Regional Safety Meetings.
- Courses, Seminars and Workshops.
- Audit Training and Preparations.
- Technical Assistance.
- Harmonisation of Regulations.

The following sections comment on each of these activities. The Steering Committee, at its successive meetings, was presented with information about the outcomes of COSCAP-SA's work programme. In many cases this was not provided in a statistical format that would facilitate a CBA for Phase IV. The approach taken therefore has been to carry out an analysis focused as much as possible on one year – 2018. This can be interpreted as an indicator of the Programme Benefits for Phase IV as a whole, but it also provides the necessary foundation for a CBA of the options for an RSOO-SA Level 2.

The method followed remains consistent with the earlier CBA analyses, but the valuations have been updated to reflect current market conditions.

### 12.2.3.4 Meetings, conferences and documentation

The COSCAP-SA Steering Committee meets annually. The 26<sup>th</sup> Steering Committee Meeting (SCM) was held on 9-11 January 2018 in Kathmandu. A key decision was to develop a plan for Phase V of the Programme which would commence on 1 January 2019 and would continue for another five years. The necessary documentation is under preparation.

COSCAP-SA also participates in the annual conference of the Directors General of Civil Aviation in Asia and the Pacific. The benefits of this and other meetings are derived from the pursuit of areas of mutual interest within the region, with other regions, and with partners. The mere fact that these activities have been approved by the Steering Committee is evidence that they have value to COSCAP-SA. However, it is not possible to place a monetary value on them.

Guidance materials issued by COSCAP-SA, in addition to the six documents prepared during Phase III and discussed above, include the following:

- Manual of Certification, Inspection and Administration (SAAP-100).
- Audit Procedures Manual (SAAP-125).
- Designated Check Pilot Manual (SAAP-150).
- MMEL/MEL Policy and Procedures Manual (SAAP-175).
- Flight Operations Inspector Manual (SAAP-200).
- Airworthiness Inspector Manual (SAAP-225).

- Enforcement Manual (SAAP-250).
- Aerodrome Certification Procedures Manual (SAAP-275).
- Aerodrome Manual (SAAP-300).
- Aerodrome Model Air Law, Regulations and Standards (SAAP-325).
- CRM Instructor Training Manual (for Pilots and Company Personnel) (SAAP-350).

This generic guidance is available to be customised by the Member States to suit their local conditions and requirements. These documents and other information resources for use by Inspectors is available on the COSCAP-SA official website at:

<http://coscapsa.org/Manuals/guidancematerial.php>.

#### 12.2.3.5 Regional safety meetings

All seven Member States participated in a teleconference of the 20<sup>th</sup> South-Asia Regional Aviation Safety Team (SARAST) to discuss implementation of the Asia Pacific Regional Aviation Safety Team (APRAST) safety tools, major safety issues identified through their National Aviation Safety Teams (NASTs) and discussions on upcoming safety tools that needed to be implemented by the States. A second meeting of SARAST is planned for October 2018, immediately following the 11<sup>th</sup> Meeting of the National Coordinators Meeting.

SARAST members also participated in the APRAST meeting to identify safety issues and propose actions for the consideration of the COSCAP-SA Steering Committee.

Benefits arising from regional safety initiatives share the characteristics of benefits arising from participation in meetings and conferences. Most important, they enable COSCAP-SA to participate in ICAO global safety initiatives.

#### 12.2.3.6 Courses, seminars and workshops

Safety Audit courses were provided in Bangladesh, Bhutan, Nepal and Sri Lanka and a course will be offered in Pakistan later in 2018. In addition, the following six training courses were provided in-country:

- Safety Assessment of Foreign Aircraft (SAFA) and Ramp course (EASA).
- Flight Operations Inspector (FOI) Course.
- Initial Dangerous Goods Oversight Training course.
- Flight Operations Inspector (FOI) course.
- Executive SMS Part I course.
- SMS and SSP Implementation course (EASA).

The table below documents the number of participants and the number of training days of the safety audit and other courses held to date in 2018. A value has been placed on this contribution on the assumption that in-country training has a value of US\$550 per participant day.

Table 12-7 : Number of participants and training days of the safety audit and other courses held to date in 2018

State where Training Event was held	Training Days	Participants	Value of Training
Bangladesh	175	35	\$96,250
Bhutan	105	21	\$57,750
India	128	16	\$70,400
Maldives	0	0	\$0
Nepal	294	94	\$161,700
Pakistan	315	21	\$173,250
Sri Lanka	523	67	\$287,650
<b>Total</b>	<b>1,540</b>	<b>254</b>	<b>\$847,000</b>

The following 18 training events were included in the COSCAP-SA Work Programme for 2018 but have not yet been held. It is likely that some will be deferred until 2019, but a conservative total estimate of the training to be provided during 2018 is that it would exceed one million dollars. This exceeds the contribution provided by the Member States.

Table 12-8 : Deferred COSCAP-SA Work Programme for 2018

Planned Training Event	State	Duration
Executive SMS Part II/III. May spill into 2019	All States	5
CDA and Energy Management Airbus/Boeing Seminars	Multiple States	5
Accident Investigation Workshop	Bangladesh	5
Human Factors (generic) course	Bangladesh	5
Aerodrome Inspector and Certification Course (EASA)	Bhutan	10
Basic ANS Inspector and Oversight Course (EASA)	Bhutan	9
Aircraft Maintenance Approvals and Reliability Programmes (EASA)	India	5
Basic ANS and Oversight Course (EASA)*	India	9
Basic Inspector PEL course (EASA)	Nepal	16
Basic SMS course	Nepal	5
Basic Inspector PEL course (EASA)	Pakistan	10
CRM Course	Pakistan	5
HIRA Course	Pakistan	5
SMS/SSP Implementation course (EASA)	Pakistan	10
Standardization of Training (Flight Operations) workshop	Pakistan	5
Accident Investigation Initial course. May spill into 2019	Sri Lanka	5
Aerodrome Inspector and Certification Course (EASA)	Sri Lanka	10
SMS – Train the Trainer course (EASA)	Sri Lanka	5

#### 12.2.3.7 Audit training, preparations and technical assistance

ICAO USOAP/CMA audits planned in South Asia in 2018 include Sri Lanka (June) and Bhutan (August). The COSCAP-SA Work Programme for 2018 envisaged the following inputs in support of States in relation to USOAP CMA/PQ activities:



Table 12-9 : COSCAP-SA Work Programme for 2018 inputs in support of States in relation to USOAP CMA/PQ activities

Activity	Member State	Duration (days)
ANS PQ review	Bhutan	5
ICVM support for CAA	Bhutan	5
LEG, ORG and AIG PQ review	Bhutan	5
OPS PQ review	Maldives	12
OPS PQ review and Technical Assistance meetings with DGCA	Pakistan	19
PEL PQ review	Pakistan	5
OPS PQ Review	Sri Lanka	12
PEL and OPS PQ review	Sri Lanka	12

On the open market, this programme of assistance is estimated to be valued at \$90,000, including DSAs.

In the event, COSCAP-SA engaged an ANS expert to provide Technical Assistance and a thorough review of the ANS PQs. This expert carried out missions to Bhutan, the Maldives and Sri Lanka. In the case of the Maldives, the ANS expert also reviewed that State's Contingency Plan as well as the PQs in the ANS area. Also, at COSCAP-SA's request, EASA funded assistance to Bhutan CAA in the area of AGA, including review of the PQs, in preparation for their upcoming ICVM.

The CTA also provided support in:

- TA and PQ reviews in OPS and PEL areas for the CAA Sri Lanka.
- the areas of LEG, ORG, AIG and ANS to Bhutan CAA in preparation for the ICVM.

As noted, Technical Assistance missions were undertaken in Bhutan, Sri Lanka and the Maldives. The following table documents the commitment of in-country time by the COSCAP-SA experts.

Table 12-10 : In-country time spent by the COSCAP-SA experts

Assistance Area	Recipient	Dates	Duration (days)
ANS Technical Assistance	Bhutan	Apr 15-Jun15	552
AGA Technical Assistance (EASA)*	Bhutan	May 9- July 15	68
ANS Technical Assistance	Maldives	June 18- July 1	25
ANS Technical Assistance	Sri Lanka	Mar 26-Apr12	62

Taking account of rates of engaging experts on the open market, including UN rates for DSAs, the cost that the Member States would have incurred to engage this assistance would have amounted to approximately \$350,000.

Additionally, Technical Assistance was provided in the areas of SARI OPS and PEL through the COSCAP SA – EASA – SARI Joint Activity Plan (JAP) 2018-2019. As a result, technical assistance was provided for a total of 15 days and 2 more missions of 5 days each have been planned for 2018.

However, the major initiative that was launched by COSCAP-SA in 2018 is the "South Asia Capacity Building Matrix" (SACBM). The SACBM has been under development for several years and it aims to

be able to deliver efficiency and effectiveness to the maintenance of a regional pool of qualified inspectors/officers in flight operations, airworthiness, personnel licensing, cabin safety, aerodromes and air navigation services. The SACBM applies Qualification Criteria and is embarking on specialised training for the inspectors who have been nominated by their States to participate in it. The SACBM was presented to the 26<sup>th</sup> Steering Committee in January 2018 and became active during the year with three missions already completed and a fourth planned for later in 2018. The SACBM is being further developed as a computerised version with a view to updating and maintaining this as a permanent resource.

The SACBM can be regarded as an asset that yields services on an annual basis, the services being the supply of regional inspectors/officers on a cooperative basis. Sri Lanka provided a person to carry out a Flight Ops 330 mission to Nepal for 7 days. Pakistan provided a PANS OPS expert to Sri Lanka for 34 days of assistance spread over four missions in 2018. Bhutan requested assistance through the SACBM for a Search and Rescue Mission over 7 days.

The value to a recipient State of experts provided through the SACBM can be valued at what they would have to pay on the open market for a Regional Expert. Within the SACBM Qualification Criteria it is intended that three levels of expertise be provided, namely:

- Junior experts – those with 5 years of experience with their CAA.
- Intermediate experts – those who have 8 years of experience and who also have conducted ten SACBM missions and have USOAP audit qualifications and Train the Trainer qualifications.
- Senior experts – those who have 10 years of experience and 20 SACBM missions plus USOAP, Train the Trainer and AIG qualifications.

It must also be borne in mind that there is a cost involved for the providing State. The State providing the expert forgoes his/her services. Though it is a cooperative arrangement, it is necessary in a CBA to take this into account. However, there is a case for not valuing this at the full pro rata salary amount because the particular resource might not have been fully utilised. It also must be borne in mind that the experts provided under the SACBM programme also need to undertake preparations prior to their missions to familiarise themselves with regulations and procedures applicable in the receiving State. At this early stage in the experience with the SACBM it is necessary to rely on the Study team's expert judgements about the costs and benefits of providing technical expertise in this manner. However, as experience grows it is recommended that COSCAP-SA in coordination with the Member States undertake a thorough analysis of the costs and benefits involved as a guide to future decisions about the scope of the SACBM.

Taking account of these considerations, the Study team estimates that the net benefit of providing a regional inspector/officer under the SACBM.s, including DSAs and travel, is as follows:

- Junior experts – \$200 per day in-country.
- Intermediate experts – \$400 per day in-country.
- Senior experts – \$600 per day in-country.

The SACBM already is proving to be a success, but it would be reasonable to predict that the activity level planned for 2018 (48 days) would grow to around 200 days per year. Depending upon the levels

of expertise involved, the value to be placed on the SACBM activities would lie close to \$100,000 a year.

However, it should be borne in mind the finding in ICAO's Study of RSOOs that seven of them had attempted to resolve manpower shortages by pooling national inspectors. Whilst SACBM is not strictly speaking a pooling arrangement, it is notable that pooling schemes function successfully only when national authorities are willing to release their experts.<sup>21</sup> Moreover, the success of these schemes depends on the implementation of common or harmonised standards, harmonised inspector training and standardised inspector manuals. ICAO Doc 9734 Part B explained it this way: *"... cooperation between aviation entities, and the free flow of aviation services, personnel and products will be greatly facilitated by the existence of a harmonized or common set of regulations"*.

#### 12.2.3.8 Harmonisation of regulations

As was seen with the SRVSOP, the benefits attributable to harmonisation of regulations within a region are sizeable and are a critical success factor in Technical Assistance and Training programmes. The value of harmonising rules, regulations and procedures was recognised at the 17<sup>th</sup> Meeting of the COSCAP-SA Steering Committee in November 2007 and, at its subsequent meetings, the Committee endorsed the technical competence of the South Asia Regional Initiative (SARI). EASA supports SARI by organising technical activities and setting up working groups for the development of regulations based on EU rules.

It has been recognised that there has been a lack of coherent and consistent level of implementation of already developed SARI Parts in the region and there continues to be a need to provide SARI with a formal and binding mechanism which will benefit the COSCAP-SA Member States in developing, implementing and updating harmonized, rules, regulations and procedures. It is timely with the evaluation of options for further institutional development of COSCAP-SA as an RSOO Level 2 that future arrangements for SARI's work can be considered.

Accordingly, it is relevant as well to examine the financial commitments necessary for this purpose. Based on advice provided by SARI, the cost of its work on regulation and development and implementation of the SARI Parts between 2008 and 2015 amounted to:

- Part 145 (Approval of Maintenance Organisation) - \$645,000, including inputs from Airbus at the commencement of the Project as well as EASA backstop support.
- Part M (continued airworthiness) - \$530,000 for work carried out between 2012 and 2015.
- Part 66 & 147 - \$645,000 for work carried out between 2010 and 2015.
- Part 21 - \$645,000 for work carried out between 2012 and 2015.

In sum, the costs associated with SARI amounted to \$1.53 million, including all contributions, over the period 2008 to 2015. Note that activities under SARI were reduced from the end of 2015 to 2017 resulting from lower levels of EASA funding. Again, it is necessary to consider the costs borne by the Member States in SARI activities.

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<sup>21</sup> *Report on the ICAO Evaluation of Regional Safety Oversight Organizations*, by Richard Lambo, Consultant, Air Navigation Bureau, ICAO, November 2017.

The SRVSOP analysis estimated that each Member State would need to spend \$60,000 on average for developing its own harmonised regulations if they undertook the task cooperatively. This is consistent with the valuation carried out for COSCAP-SA in 2004 wherein it was assumed that it would take four months of input to develop a regulation, and that the cost of engaging expertise on the open market to accomplish this would have been \$12,000 per month. Considering that both sets of parameters were applied at least a decade ago, it would be reasonable to assume now that each regulation would cost \$90,000. For the Parts indicated above, this amounts to \$360,00 for each Member State and does not include the necessary supporting work required to ensure successful implementation.

The benefits of harmonisation extend far beyond this. The SRVSOP claims it has generated direct benefits exceeding \$35 million and that the LEI in the region has risen above 80%, but it attributes its success to having a highly harmonised environment.<sup>22</sup> In particular, harmonisation promotes the following:

- Achievement of economies of scale in the development of regulations.
- Improved efficiency of experts by reducing the amount of time required for them to become familiar with each State's regulations and procedures.
- Improved effectiveness of experts.
- Improved efficiency and effectiveness of training programmes.
- Reduced cost of compliance for industry.

The ICAO Study on RSOOs concluded that harmonisation was a critical success factor for an RSOO performing Level 2 activities.

#### 12.2.3.9 Summary of benefits to States of COSCAP-SA Phase IV

The total contributions made by Member States to COSCAP-SA in 2018 amounted to \$717,555. The table below summarises the benefits, both measurable in monetary terms, and intangible by nature. The measurable benefits amount to \$1.44 million and thus the Benefit/Cost ratio for the Member States is 2.0. That is, the Member States were able to save twice the amount of the contributions to COSCAP-SA as a result of the savings they would have had to make to achieve the same results. But the items that are not possible to put into reasonable monetary valuations – the “qualitative benefits” are of far greater real value.

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<sup>22</sup> See Franklin Hoyer, Regional Director for South American Region, ICAO and General Coordinator, SRVSOP, Forum on Regional Safety Oversight Organisations (RSOOs) For Global Aviation Safety, 22 –24 March 2017, Ezulwini, Swaziland.

Table 12-11 : Summary of Benefits to States of COSCAP-SA

Activity	Savings Made Possible by COSCAP-SA	Qualitative Valuation
Meetings, Conferences and Documentation	Not measurable	<p>a) The Steering Committee Meetings and other events organised under the auspices of COSCAP-SA enable the leaders in aviation safety to share common concerns, pursue common solutions, share resources.</p> <p>b) COSCAP-SA developed and maintains manuals and guidance material for the benefit of the MS, and this is an asset that would be very costly to replicate.</p>
Regional Safety Meetings	Not measurable	COSCAP-SA actively implements ICAO plans for aviation safety and has an active role in coordinating the NAST and SARAST and its engagement with APRAST.
Courses, Seminars and Workshops	\$1 million	COSCAP-SA has been heavily engaged in training activities from the outset. The MS advised the Study team that this was a highly-valued activity that should be continued.
Audit Training and Preparations	\$90,000	<p>a) Though many of the MS in South Asia already have LEIs above the global average, there are some States that have yet to achieve this benchmark;</p> <p>b) It must be remembered that the target of reaching the global average should be kept in proportion – the goal should be to attain 100% LEI.</p>
Technical Assistance	\$350,000	At this early stage of the development of the SACBM it is difficult to assess its full benefits, some of which are not directly measurable and can be counted in terms of improved career opportunities and the foundation for building even stronger regional cooperative programmes.
Harmonisation of Regulations and Procedures	Funded separately from COSCAP-SA	These provide the foundation for an RSOO operating successfully at Level 2. There are tangible benefits in terms of achieving economies of scale in developing regulations, procedures and related documentation as well as in improving the effectiveness of training.

### 13. EVALUATING THE SCENARIOS FOR RSOO

#### 13.1 Scenario A

##### 13.1.1 Approach and assumptions

Scenario A has been developed in accordance with the requirement in the Terms of Reference to *“ensure that possible national contributions may not exceed current contributions to the COSCAP-SA and SARI but suggesting other sustainable funding mechanisms that may be viable, perhaps with an even reduced financial burden on those States with the lowest aviation activity”*.

Accordingly, Scenario A assumes a level of funding equivalent to that available in Phase IV. Regarding the activities expected to be carried out within that budget, the Study team observed the following:

- COSCAP-SA level of participation in meetings, including those of the Steering Committee and events under its umbrella, should remain a high priority to facilitate dialogue and exchange of information and experience on aviation safety matters among COSCAP-SA Member States and promote solutions to common problems.
- Training and the development of guidance material, inspectors’ handbooks, and related matters provided by COSCAP-SA is highly valued by all Member States.
- Technical expertise made available by COSCAP-SA is a cost-effective solution for many of the States, especially when dealing with the pressures of rapid growth of industry and taking into account the difficulties in maintaining expertise in specialist areas.
- The SACBM should be continued and increased as a means to provide technical expertise available across a range of specialisations on a cost-effective basis and to provide more rewarding career opportunities for inspectors and other professionals.
- Increased technical support in the field of ANS is desired by many of the Member States, particularly in the areas of training and capacity building, particular in SAR, AIS and ATM (PANS-OPS).
- COSCAP-SA continues to play an important role in assisting States with USOAP/Continuous Monitoring matters through training, guidance materials and participation by the COSCAP-SA experts.
- The value of harmonising regulations, practices and procedures is widely appreciated, and a sustainable solution needs to be found to continue the work of SARI, particularly in the fields of ANS/AGA/AIG and, for some specific States, in OPS and AIR.

In carrying out a CBA it is necessary to compare each Scenario/option with a “Base Case” – what would have happened by default. The Study team has taken Phase IV as the Base Case for the RSOO, and Scenario 1 envisages a change in the activities in two respects. The first is a shift in emphasis on areas of expertise provided.

The second is a critical change in the character of the assistance. For the RSOO to perform Level 2 functions it is critical that the Inspectors and other professionals made available have the necessary legal delegation of authorities so that their contributions can be recognised for ICAO audit processes. Indeed, the Study team identified a large number of Level 2 activities which could be undertaken by an RSOO. However, the need for assistance varied from those States needing assistance in all CEs and audit areas (disciplines) to those not needing any assistance.

Notably, some of the areas where assistance would be valued include regulatory services provided to industry including the review, assessment and recommendations for approval of industry

submissions for AOC, MRO, ATO etc. This raises the possibility that the RSOO could take on increased levels of activity in the provision of technical assistance on the basis that the State's requesting the service recover the costs from industry and recompense the RSOO. This would certainly help States in coping with the robust growth occurring in their aviation sectors.

### 13.1.2 Valuation of costs

A summary of the assumed outlays for the Base Case is set out below. This is based on the costs expected to be incurred at the commencement of Phase IV of COSCAP-SA. Assuming that the level of activity remains similar in Scenario A, it is unlikely that non-staffing costs would vary from the Base Case. However, 68% of the costs of the Base Case would be incurred in employing staff and it is this element that requires closer examination.

Table 13-1 : Assumed Base Case Costs – Continuation of Phase IV Activities of COSCAP-SA

Expense Category	Total	Annual	Share
International Professional Posts	\$1,384,300	\$276,860	53%
Regional and Local Staff	\$317,600	\$63,520	12%
Short-term International	\$66,600	\$13,320	3%
<b>Total Staffing</b>	<b>\$1,768,500</b>	<b>\$353,700</b>	<b>68%</b>
Travel	\$466,600	\$93,320	18%
Equipment	\$18,000	\$3,600	1%
Administration + Miscellaneous	\$116,800	\$23,360	4%
Overhead Charges	\$236,600	\$47,320	9%
<b>Total Budgeted Expenses</b>	<b>\$2,606,500</b>	<b>\$521,300</b>	<b>100%</b>

Source: COSCAP-SA Phase IV Programme Document.

Note: The Programme Document allowed expenditure in the initial period to span different years and also allowed time for the appointment of staff. An adjustment was made in preparing the above table to reflect five years of full operation into the future.

The funding available in the Base Case would be sufficient to employ a full-time CTA, one Regional Expert, and a locally recruited "Implementation Assistant". The cost of an administrative assistant is expected to be borne by the host State.

It is assumed that the CTA position will continue as a Flight Standards position, in the short term at least (2+ Years). Given the priorities and variable demands of Member States, the Steering Committee may wish to consider the initial appointment of the Regional Expert in the field of ANS and alternating this later in the Programme with, perhaps, a person who can play a role in the development of SSPs or in AIG. The continuing and expanded use of the SACBM will be included under Scenario A as a valuable way to supplement the resources for technical assistance under RSOO.

The Study team draws attention to the willingness expressed by a significant number of CAAs to take advantage of support in relation to:

- Provision of ANS support including development of PBN, AIS to AIM, SAR, PANS-OPS and oversight of ANSPs.
- Provision of Flight Ops support including oversight of Foreign Carriers via ramp checking.
- Provision of development support in AIG.
- Certification support in relation to Aerodromes.

- Provision of support to expand SMS and to develop and institute SSP (including support to the ANSP on how to implement the SMS, and CAA on how to audit SMS implementation).

It is possible that these tasks could be performed by short-term experts (STEs) who are made available to Member States on a cost-recovery basis. Employing these experts under the RSOO could be more efficient because they can meet the needs of sub-sets of Member States more efficiently than the Member States employing them individually. Thus, allowance has been made under Scenario A for the employment of STEs who would be on an 'as required' basis to fulfil roles which cannot be undertaken effectively either by the full-time staff of the RSOO or the use of experts through the SACBM. In that case, even more stringent criteria would need to be applied in the selection of experts from the SACBM.

An annual allowance of \$120,000 would be sufficient for this purpose, but the Steering Committee would be able to increase or decrease this commitment based on actual use of these on-demand services. Associated with this would be higher travel and DSA costs. The overhead costs of 10% have been adjusted accordingly. These are the only changes in costs compared to the Base Case and it can be recovered through charges levied on the first instance, on the requesting Member States, but in turn from industry sources where regulatory services are being provided.

The activities of SARI would be brought under the RSOO to continue cooperative programmes for harmonisation of regulations and procedures, costs of which would need to be borne by the Member States. At minimum, implementation of the work carried out by SARI to date should be pursued.

Critically, Scenario A creates an RSOO with the requisite legal personality to perform Level 2 functions. It is assumed that this can be achieved on the basis of inputs by the Member States.

Table 13-2 : Estimated Scenario A Costs

Expense Category	Total	Annual	Share
International Professional Posts	\$1,384,300	\$276,860	41%
Regional and Local Staff	\$314,600	\$62,920	9%
Short-term International	\$600,000	\$120,000	18%
<b>Total Staffing</b>	<b>\$2,298,980</b>	<b>\$459,780</b>	<b>67%</b>
Travel	\$690,000	\$138,000	20%
Equipment	\$18,000	\$3,600	1%
Administration + Miscellaneous	\$116,800	\$23,360	3%
Overhead Charges	\$312,370	\$62,474	9%
<b>Total Estimated Expenses</b>	<b>\$3,436,070</b>	<b>\$687,214</b>	<b>100%</b>

### 13.1.3 Valuation of benefits

As noted, the differences between the Base Case and Scenario A arise in the emphasis on areas of assistance provided and on the character of that assistance.

The orientation of the work programme recommended by the Study team under Scenario A could be achieved as well under a continuation of COSCAP-SA Phase V. Though these recommendations would address priorities revealed to the Study team, they do not indicate a benefit from formal development of the RSOO.



What would make a difference is that the RSOO model allows the States to enjoy the benefits of Level 2 operational services and to have recognition of the work performed by ICAO in its audits. The alternative open to a Member State is to employ an International Expert from a recognised entity to perform necessary certification and licensing functions, or to prepare regulations and procedures.

The following table summarises the annual net benefits of Scenario A compared to the base case.

Table 13-3 : Summary of Net Benefits Generated by Scenario A compared to the Base Case

Benefits	Annual Benefit
1. Capability of CTA and Regional Expert to perform Level 2 functions	\$47,925
2. Capability added for operational tasks with additional short-term International Experts	\$210,000
3. Increased capability for Programme activities	\$47,736
4. Productivity improvements	
a) Increased value of TA - RSOO experts	\$118,688
b) Increased value of TA - SACBM experts	\$29,250
c) Increased value of Programme Activities	\$62,070
d) Increased value of Training	\$297,000
Total	\$812,669

Item 1 accounts for the increased value of the Technical Assistance provided by the CTA and the Regional Expert because they are able to carry out Level 2 activities in such a way that these inputs are recognised in ICAO USOAP audits. The values attributed to the Technical Assistance under the Base Case were thus adjusted upwards by 25%.

Item 2 accounts for the value of the additional International Experts carrying out operational tasks on Technical Assistance missions, amounting to the equivalent of one expert per annum. It was assumed that a total of 10 missions would be undertaken, with each lasting 15 working days, on average. This input was valued at the same rate as the CTA.

Item 3 is an estimate of the value of the additional International Experts carrying out Programme Work and is based on 30% of the cost of engaging them<sup>23</sup>, but with this amount increased by 50% on the assumption that the RSOO would be able to utilise this expertise to produce benefits exceeding the costs of their employment. This work would include the production of manuals and guidance materials, regional training, and possibly involvement in harmonisation of regulations.

Item 4 measures the productivity improvement arising from transformation from an entity performing Level 1 (advisory) activities to one that also carries out Level 2 (operational) functions. In particular, it reflects the value of continuing the harmonisation of regulations as well as more general benefits arising from the RSOO being able to provide operational assistance not measured in other ways.

<sup>23</sup> In the past, approximately 30% of the time of experts has been devoted to Programme activities.

The judgement of the Study team is that this productivity improvement would be at least 30%. This factor was applied to the value of Technical Assistance provided by the RSOO experts and those provided through the SACBM. It also was applied to the value of the Programme activities and to training. In relation to Training, the assumptions were that 1,800 person-days of training would be provided under both the Base Case and Scenario A, and the value of a training day averaged \$550 per person. That is, the total estimated value of the training was \$990,000. However, only the value of the increased productivity of the training was included in the CBA as per the methodology of measuring only the differences between the cases.

#### 13.1.4 Summary

The estimated increase in costs of Scenario A over and above the Base Case is \$830 thousand taken over the five years of the Programme. The difference arises because of the additional employment of international technical experts capable of assisting MS with operational tasks with an expectation that these costs would be covered by user charges and/or donor assistance or by the States themselves instead of engaging needed assistance individually. Also, this cost does not include requirements to continue an effective programme of regulatory harmonisation. At minimum, SARI activities should be continued by the MS with coordination being provided by the RSOO. However, the harmonisation of regulations is a vital success factor for an RSOO and every effort should be made to encourage donor support to carry out a more extensive programme.

Against this cost, the net benefits over five years would amount to \$4.06 million. Sixty-two percent of these benefits were estimated to be generated by the productivity improvement, the biggest single element being that the value of training increased significantly because training becomes much more efficient and effective with harmonised regulatory programmes in place. Improved productivity of training thus individually accounted for 37% of the net benefits. Note that the training undertaken by MS would also benefit from harmonisation of regulations, but this has not been included here in the measurable benefits. The next most important category of benefit was provided by the addition of technical assistants.

On this basis, the Benefit to Cost (B/C) Ratio is 4.9. If the cost of engaging the additional technical assistants is removed, there is no additional cost other than the establishment costs and the benefits would amount to \$2.78 million, but this is predicated on maintaining an effective regulatory harmonisation programme.

## 13.2 Scenario B1

### 13.2.1 Approach and assumptions

As discussed above, the Base Case was developed using Phase IV costings. Hence the levels of activities in Scenario B are in addition to those carried out in Phase IV. With Scenario A, the costs incurred by the MS were not increased, but this constraint is not applied with Scenario B1. Any cost involved in establishing a legal personality for the RSOO is met by in-kind contributions from MS and donors.

Key design parameters are:

- Legal basis is the SAARC Treaty + an MOU with ICAO + a Host Agreement.
- ICAO Recognised delegation of authority including AIG.
- Governance by the Steering Committee + ICAO + an Advisory Board.
- Trust Fund management by ICAO, including recruitment.
- CTA continues, including management responsibility.
- Other long-term International Experts in AIG and SSP/SMS.
- Five long-term Regional Experts (Licensing expert, harmonisation + implementation expert (SARI), ANS, AGA, AIR) .
- Equivalent of one annual full-time International Experts to be filled with shorter-term assignments (specialists in SAFA, ECCAIRS, AVMED, LEG).
- RSOO-SA is located permanently rather than being rotated.

Long-term experts contribute 220 working days annually, of which 60% approximately are devoted to State-specific activity, 30% to Programme activities, and the remainder being set aside for organisational matters and training/certification of the RSOO experts. The short-term experts are available for 240 working days, which would be allocated between State-specific and Programme activities in the ratio of 2:1. The long-term experts would undertake 11 missions to MS each year, not including work carried out in the host State, with an average duration of 10 working days. The short-term International Experts would undertake 9 missions each year, again not including work carried out in the host State, with an average duration of 15 working days.

The (measurable) services (benefits) provided as State-specific activities include:

- Benefit 1: Training - in-country, incl. OJT
- Benefit 2: Technical Assistance - advisory
- Benefit 3: Technical Assistance - operational

The (measurable) services (benefits) provided as Programme activities include:

- Benefit 4: Training - regional
- Benefit 5: Manuals and guidance
- Benefit 6: Harmonisation of regulations, etc

Of the time available for State-specific activities, half was assumed to be devoted to training, including On-the-Job training. The remainder is divided equally to advisory and operational Technical Assistance. For the time devoted to Programme activities, 20% was assumed to be spent on regional training activities, and the remainder divided equally to the development and maintenance of manuals and guidance materials and to harmonisation of regulations.

As was the case for the evaluation of Scenario A, it was assumed that the SACBM would generate 200 man-days of input, half of which would be provided by Junior experts and the remainder split equally between Intermediate and Senior experts. Note that this same assumption was used for the Base Case.

Training in the Base Case delivered 1,800 person days. This was increased to 2,500 in-country days and 680 regional course person days per annum in Scenario B1.

The assumption made with the CBA in DP-# SCM13 was that the value of manuals, etc varied between \$15,000 and \$30,00 each. These amounts were updated to \$20,000 and \$40,000, respectively, and it was assumed that time available for this activity was split equally between the two levels. The higher valued manuals were assumed to require twice the amount of time per unit.

There is an additional benefit in Scenario B1 because the increase in resourcing makes it possible to expand the number of harmonised regulations and to further assist in implementation. It was assumed that each regulation requires 120 expert man-days, making it possible to work on 2 each year. The value of a harmonised regulation to each MS, based on the cost of engaging International Experts, was estimated to be \$159,000. The RSOO provides a benefit available to all the MS. If each MS acted independently, this cost would be replicated 7 times.

### 13.2.2 Valuation of costs

The cost of employing the CTA was assumed to be the same as in the Base Case. The cost of employing the other long-term International Experts was estimated to be 70% of the cost of employing the CTA for each of the two persons. The cost of employing the long-term Regional Experts was estimated to be 25% of the cost of employing a long-term International Expert.

An amount of \$80,000 per annum was allowed to meet the expenses involved in training and certifying the RSOO experts as necessary. The administrative costs are summarised in the table below. These include several establishment costs including the purchase of computers, software and office equipment. They also include the purchase of an ICT platform and an annual subscription. These are necessary to provide stronger management systems and the ability to generate activity-based costing as a basis for charging for services provided.

Table 13-4 : Office Expenses

Category	Amount	Timing
Admin Expenses	\$12,000	Annual
Computers/Office Equipment	\$60,000	Once-off
Utility Expenses	\$12,000	Annual
Transport/vehicle expenses	\$12,000	Annual
Communication Expenses	\$12,000	Annual
ICT Platform Acquisition	\$25,000	Once-off
ICT Platform Annual Subscription	\$10,000	Annual
<b>Total Office Expenses</b>	<b>\$143,000</b>	

The total estimated cost of Scenario B1, taken over 5 years, is \$8.23 million, of which 66% is for the employment of experts, and another 16% would be incurred in travel costs in missions to the MS.

Overhead costs would increase because they are based on the levy of 10% on costs for project administration by ICAO.

Table 13-5 : Estimated Scenario B1 Costs

Expense Category	Total	Annual	Share
International Professional Posts	\$3,240,000	\$648,000	39%
Regional and Local Staff	1,181,250	\$236,250	12%
Short-term International	\$990,000	\$198,000	12%
<b>Total Staffing</b>	<b>\$5,411,250</b>	<b>\$1,035,000</b>	<b>66%</b>
Travel	\$1,295,667	\$259,133	16%
Equipment	\$0	\$0	0%
Administration + Miscellaneous	\$775,000	\$155,000	9%
Overhead Charges	\$748,192	\$149,638	9%
<b>Total Estimated Expenses</b>	<b>\$8,230,108</b>	<b>\$1,562,587</b>	<b>100%</b>

Note: Equipment Costs are listed here for completeness - they were a specific line-element in the Base Case costing. Now these are included in the Administration + Miscellaneous category.

### 13.2.3 Valuation of benefits

The value of Technical Assistance was based on the cost of employing the experts on a daily basis, increased by a percentage to reflect their market value if the MS had to engage the same expertise on the open market. This premium was higher when the experts are engaged in providing technical support rather than acting in an advisory capacity.

Assumptions used in the evaluation of Scenario A about the SACBM inputs and Programme activities were continued. However, the productivity improvement was increased to 35% reflecting the benefits of a stronger core programme.

The total estimated annual benefits of Scenario B1 over and above the Base Case amount to \$5.8 million annually. The largest single benefit is attributed to harmonised regulations (44%), which is consistent with the findings in the RSVOP and ICAO guidance. Provision of Technical Assistance amounts to 16% of the net benefits, and Training adds another 11% to the total. The productivity improvement added 20% to the total estimated benefits.

Table 13-6 : Summary of Net Benefits Generated by Scenario B1 compared to the Base Case

Benefits	Annual
<b>State-Specific Activities</b>	
Capability of CTA and Regional Expert to perform Level 2 functions	\$672,708
Capability added for operational tasks with additional short-term International Experts	\$232,232
Training - In-Country	\$385,000
<b>Increased capability for Programme activities</b>	
Production and Maintenance of Manuals, etc	\$544,000
Harmonised Regulations	\$2,523,665
Training - Regional	\$238,000
<b>Productivity improvements</b>	

Increased value of TA - RSOO experts	\$372,702
Increased value of TA - SACBM experts	\$34,125
Increased value of Manuals, etc	\$190,400
Increased value of Training	\$564,550
<b>Total</b>	<b>\$5,757,382</b>

#### 13.2.4 Summary

The estimated increase in costs of Scenario B1 over and above the Base Case is \$5.6 million taken over the five years of the Programme.

Against this cost, the net benefits over five years would amount to \$28.8 million.

On this basis, the Benefit to Cost (B/C) Ratio is 5.12.

However, Scenario B1 also needs to be compared with the alternative of Scenario A. A higher B/C ratio is useful in ranking projects only if they are based on the same level of costs. The correct procedure is to examine the incremental costs and benefits of Scenario B1 relative to Scenario A.

The additional cost is \$4.8 million and the additional net benefits are \$25.6 million. The resulting B/C ratio is 5.33. That is, for every additional dollar spent by the MS on moving from Scenario A to Scenario B1 would generate a benefit (cost saving) of \$5.33.

### 13.3 Scenarios B2 and B3

Key differences in the design parameters for Scenario B2/B3 compared to Scenario B1 are:

- Legal basis: same as B1 except that it has an MOU/contract with Trust Fund management instead of an MOU with ICAO.
- Governance: minus ICAO.
- Trust Fund management by an international financial institution (e.g. ADB, World Bank) instead of ICAO.
- CTA position no longer exists, but provision for an international general manager.
- An OPS expert added to long-term International Experts.
- Various MOU options including with ICAOP and/or EASA.

These have few consequences for costs, although there are positive implications for the efficiency and effectiveness of the RSOO. The cost of employing a CTA is eliminated, but there is an additional international long-term expert in the OPS area. There also is an expense in employing an international general manager. However, this position can be expected to improve the managerial performance of the RSOO and provide a basis for negotiating a reduction in the administrative charge from its current 10% to 5%.

The net impact of these variations from Scenario B1 are insignificant and the choice among the options should be made on the basis of the non-quantifiable benefits.

### 13.4 Scenario C

Scenario C is distinguishable from the previous "B" Scenarios in its institutional setting under its own treaty and a considerable expansion and reorientation of its capabilities. It would have 6 long-term International Experts (instead of 3), and the number of short-term International Experts would increase from one to 3. Training activities (classroom training for inspectors of various faculties) would be assigned to a SA Aviation Training Academy, but there would be more on-the-job training. The administrative and travel costs were adjusted accordingly. Although it would not be necessary to pay a fee for Trust Fund management under Scenario C, it was assumed that overheads would remain at 5% of total costs. As a result, the total cost over the 5-year Programme increases to \$14.07 million. The Benefits increase to \$59.1 million and the Benefit/Cost ratio is 5.16.

For the reasons mentioned above, the B/C ratios for the Scenarios should not be compared directly. The incremental cost of Scenario C relative to Scenario B1 is \$5.8 million. It adds \$36 million to net benefits. On that basis, the additional expenditure on Scenario C compared to Scenario B1 yields a Cost/Benefit ratio of 6.16. That is, every extra dollar invested in an expanded RSOO with its own Treaty would generate \$6.16 in benefits to the MS.

Table 13-7 : Estimated Scenario C Costs

Expense Category	Total	Annual	Share
International Professional Posts	\$6,270,000	\$1,254,000	45%
Regional and Local Staff	\$708,750	\$141,750	5%
Short-term International	\$3,060,000	\$612,000	22%
<b>Total Staffing</b>	<b>\$10,038,750</b>	<b>\$2,007,750</b>	<b>71%</b>
Travel	\$2,256,500	\$451,300	16%
Equipment	\$0	\$0	0%
Administration + Miscellaneous	\$1,102,500	\$220,500	8%
Overhead Charges	\$669,888	\$133,978	5%
<b>Total Estimated Expenses</b>	<b>\$14,067,638</b>	<b>\$2,813,528</b>	<b>100%</b>

Note: Equipment Costs are listed here for completeness - they were a specific line-element in the Base Case costing. Now these are included in the Administration + Miscellaneous category.

Table 13-8 : Summary of Net Benefits Generated by Scenario C compared to the Base Case

Benefits	Annual
State-Specific Activities	
Capability of CTA and Regional Expert to perform Level 2 functions	\$1,308,622
Capability added for operational tasks with additional short-term International Experts	\$1,766,912
On-the-Job Training	\$2,746,250
Increased capability for Programme activities	
Production and Maintenance of Manuals, etc	\$732,000
Harmonised Regulations	\$4,457,007
Productivity improvements	
Increased value of TA - RSOO experts	\$1,633,472
Increased value of TA - SACBM experts	\$34,125
Increased value of Manuals, etc	\$256,200
Increased value of Training (OJT)	\$961,188
<b>Total</b>	<b>\$14,02,047</b>

#### 13.4.1 Limitations

The methodology applied herein has inherent limitations. It quantifies, to the maximum extent, the costs incurred in each of the cases, and compares this with the savings in costs (i.e. benefits) associated with each of the Scenarios.

Though there are measurement issues involved with this approach, which will be commented on below, it yields pragmatic information designed to assist decision-making. However, it underStates the true benefits of investing in aviation safety oversight. The “protection of consumers from hazards to their health and safety” heads the list of the United Nations’ principles for consumer protection<sup>24</sup>, and the aviation sector has always recognised the primary importance of safety and security. The Scenarios under evaluation here have, as their objective, the improvement of safety. The CBA methodology adopted herein, however, is only capable of evaluating the efficiency of delivering particular services such as technical assistance and training. It does not link those services to the primary objective of improving safety through enhanced oversight.

Comments were made above about the shortcomings of the methodology, but it is the view of the Study team that the benefits to consumers and to national economies of the Scenarios under evaluation are significantly higher than the quantified costs savings in delivering the safety oversight services. As a specific example, we have not been able to place monetary values on the benefits of participating in ICAO and regional initiatives to improve safety.

Turning to the measurement issues, we note that it has not been possible to account for all of the costs incurred for the Base Case and the Scenarios. In particular, the costs incurred by the MS to participate in the RSOO (COSCAP-SA) activities and the contributions in-kind by MS, ICAO, donors and industry partners. This information would have added realism to the analyses but would not

<sup>24</sup> United Nations 2003. United Nations Guidelines for Consumer Protection (as expanded in 1999). [http://www.un.org/esa/sustdev/publications/consumption\\_en.pdf](http://www.un.org/esa/sustdev/publications/consumption_en.pdf).



necessarily have had a significant impact on the results; the reason being that many of the costs arise for both the Base Case and the Scenarios.

Similarly, the lack of detailed quantified information about activities carried out in the past has made it difficult to account fully for benefits and to attribute them to individual MS and to identify how much industry has been assisted (e.g. by its participation in training events).

Table 13-9 : SWOT Analysis of a RSOO

Strengths	Weaknesses	Opportunities	Threats
Economies of scale and improved efficiency and effectiveness of training programmes.	Depends on sustained and reliable funding.	CBA analysis consistently show that States gain much more than they contribute at present. There is scope to achieve even greater benefits by increasing the level of activity of the RSOO.	The robust growth in aviation makes it more difficult to attract and retain professionals and there are consequent increases in the cost of providing effective safety oversight.
The MS are bound by national/civil service employment conditions whereas the RSOO can exercise greater flexibility to attract and retain competent experts.	There is a risk that the costs of establishing and operating an RSOO as an institution could be out of proportion to benefits provided.	Effective coordination of the programmes of the RSOO and the MS allows the CAAs to focus on areas where they have strengths while meeting their safety oversight obligations.	Reduced commitment from Governments to CAAs based on a perception that reliance can be placed on the RSOO.
Strong focus on improving the EIs of all of the MS and to achieve at least minimum goals.	Success of an RSOO requires effective harmonisation of regulations and procedures.	States can delegate operational functions and are able to respond more flexibly and promptly to industry needs in robust growth situations.	Possible dilution of the competence of a CAA if it becomes dependent on external assistance.
Improved attractiveness for donors.	Efficient delivery of services is dependent upon capable management of the RSOO.	Scope for the RSOO to develop IT platforms to improve sharing of information.	Possible conflict between professionals employed in RSOOs and CAAs.
Exclusive focus on safety oversight.	Action to resolve safety deficiencies depends on the enforcement actions of MS.	Career opportunities for technical experts to work regionally with a higher level of remuneration.	Competition between the CAAs and the RSOO for a limited pool of technical expertise
Potential to develop sustainable funding based on user charges.	Effectiveness of the Steering Committee is reduced when there is a high turnover rate of DGs.	Ensuring that the RSOO has the necessary legal personality provides a legal basis for effective safety oversight and facilitates innovative funding methods, including a passenger levy.	RSOO may evolve in unintended ways (e.g. as a Regional Safety Authority).

### 13.5 Impacts of the Scenarios on Individual Member States

The following table shows the funding requirements for each of the Scenarios on the basis of historical shares of Member State contributions to COSCAP-SA. The table shows the historical shares of contributions and then applies these percentages to differing funding levels that correspond to Scenarios A, B and C, respectively. For example, Scenario C would require annual total contributions of \$2.8 million. If the Steering Committee were to continue sharing this cost according to the previously agreed formula, Bangladesh, for example, would need to contribute \$388,000 per year.

One option that has been raised for consideration by the Steering Committee is to recover the costs of participation in the RSOO through a levy on departing international passengers. Continuing the example of Bangladesh, there were 3.8 million departing international passengers in 2017, and if they contributed just 11 cents each the amount of revenue raised would be sufficient to cover Bangladesh's contribution. The highest required levy would be 85 cents in the case of Bhutan. The simple average levy using this approach would be 21 cents. The Steering Committee therefore can be assured that the impact of a user charges approach to fund an RSOO would have a very small impact on passengers.

**Table 13-90 : Funding the Scenarios**

Member State	Historical Share of Contributions	Contribution Levels at Differing Levels of Funding			Required Passenger Levy	Amount Raised	Passengers
		\$520,000	\$1,650,000	\$2,800,000			
Bangladesh	14%	\$72,079	\$228,713	\$388,119	\$0.11	\$418,190	3,801,724
Bhutan	5%	\$25,743	\$81,683	\$138,614	\$0.85	\$138,859	163,364
India	26%	\$133,861	\$424,752	\$720,792	\$0.03	\$820,500	27,350,000
Maldives	7%	\$36,040	\$114,356	\$194,059	\$0.12	\$204,269	1,702,242
Nepal	14%	\$72,079	\$228,713	\$388,119	\$0.19	\$395,799	2,083,150
Pakistan	20%	\$102,970	\$326,733	\$554,455	\$0.08	\$598,495	7,481,190
Sri Lanka	15%	\$77,228	\$245,050	\$415,842	\$0.09	\$436,609	4,851,216
<b>All MS</b>	<b>100%</b>	<b>\$520,000</b>	<b>\$1,650,000</b>	<b>\$2,800,000</b>	<b>\$0.21</b>	<b>\$3,012,721</b>	<b>47,548,446</b>

While the Table above indicates the financial and contribution aspects of the effects on MS, there is also a consideration of the effect on individual MS of the various Scenarios. Much of this detail has been covered in the report in relation to the CEs and AAs coverage under various Scenarios and with various financial inputs from MS. Another way of considering this, in overview is as follows:

- Adoption of Scenario A would provide some continuing training and very limited Level 2 activities to MS. As a result the EI of MS may increase only marginally. Individual CAAs would additionally need to separately contract a number of individuals/organisations or increase their own staff numbers substantially, to address the issue of low EI.
- Adoption of any of the Scenario Bs would provide some continuing training and a reasonable amount of Level 2 activities to MS. As a result the EI of MS may increase considerably. Individual CAAs may additionally need to separately contract individuals/organisations or increase their own staff numbers to address the issue of meeting an acceptable EI.
- Adoption of Scenario C would provide some continuing training and a large amount of Level 2 activities to MS. As a result the EI of MS may increase substantially. Individual CAAs would

NOT need to separately contract individuals or organisations or increase their own staff numbers substantially to address the issue of low EI.

Additionally, under Scenario C there is a capability of providing a far higher level of training through the evolution of a co-located training centre.

### **13.6 Considerations for Further Development of National Authorities based on Selected RSOO Scenario**

The adoption by MS of any of the Scenarios will have varying effects on the CAAs, mainly dependent on the amount of Level 2 support provided under each Scenario. For example, a mature and effective RSOO providing considerable Level 2 activities to MS under the Scenarios B or C would allow the CAAs to consider what their long term human resources needs may be. Because, effectively the RSOO could provide services under Scenario C as if it was a virtual part of each CAA there is a consideration that some AAs may be fully covered only by the RSOO and that the CAA need only maintain sufficient expertise to be able to appropriately interpret the recommendations made to it.

In Scenario A and each of the B Scenarios, the level of training to be provided is relatively constant and there is therefore little change in this role. It could be argued that the greater number of experts available in the B Scenarios will have an increased additional development advantage of greater mentoring and assistance to CAA staff and while this is likely, it is difficult to quantify until a final Scenario is chosen.

Adoption of Scenario C would allow MS to access a large number of International and Regional Experts and to manage the substantial benefits that these will bring to the CAAs. As well as undertaking Level 2 tasks the significant mentoring and guidance opportunities under this Scenario would materially benefit the staff of the CAAs and enhance the effectiveness of the organisations in many ways.

### **13.7 Impacts of the Scenarios on Stakeholders**

In this context the major stakeholders are State Governments, the aviation industry in each State and the travelling public. For each of these, the Scenarios have various impacts.

The adoption of Scenario A will have little impact on any stakeholders as there will be only very limited Level 2 activities undertaken for CAAs and therefore limited change to both EI and State safety levels. For those States with a reasonably high EI there will be only 'fine tuning' in some specific CEs and AAs. Overall aviation safety results for the States with low EI will change only marginally and therefore the impact on the industry and travelling public may be the continuation of higher than acceptable potential accident rates.

The adoption of any of the Scenario Bs will have some impact on stakeholders as there will be considerable Level 2 activities undertaken for CAAs and therefore a commensurate change to both EI and State safety levels. For those States with a reasonably high EI there will be a chance to address many of the outstanding issues and AAs. Overall aviation safety results for the States with low EI will change considerably and therefore the impact on the industry and travelling public may be the reduction of higher than acceptable potential accident rates.

The adoption of Scenario C will have a major impact on stakeholders as there will be a greater amount of Level 2 activities undertaken for CAAs and therefore a substantial change to both EI and State safety levels. For those States with a reasonably high EI there will be a chance to address all of the outstanding issues and AAs. Overall aviation safety results for the States with low EI will change substantially and therefore the impact on the industry and travelling public may be the significant reduction of higher than acceptable potential accident rates.

### **13.8 Objectives, Tasks and Functions of a RSOO Level 2**

The objective is clearly Stated in the Terms of Reference for the Feasibility Study, i.e. the establishment of an RSOO capable of carrying out Level 2 tasks and functions. Under the Global Aviation Safety Oversight System (GASOS), a Level 2 delegation from States enables the RSOO to provide operational assistance. Level 2 functions typically include the conduct of inspections or full technical inspections for the purpose of certification and surveillance. It also includes the conduct of parts of safety investigations under Annex 13. It logically follows that an RSOO capable of carrying out Level 2 functions is also able, for the most part, to provide Level 1 services, by way of advisory and coordinating functions. Delegation at Level 1 include tasks and functions, such as the development of aviation safety legislation or regulations, the development of guidance material, such as inspector manuals and checklists, assisting in the identification of differences to the SARPs and the coordination of a pool of inspectors and experts.

COSCAPs, such as COSCAP-SA, normally carry out Level 1 functions on behalf of their Member States. However, in order to carry out Level 2 functions, an RSOO requires a legal framework that empowers it to accept Level 2 delegations from States. Ideally, such an RSOO should be established as an interGovernmental organization on the basis of a treaty or other such formal agreement that provides for international legal personality.

Under Scenario A, SA States will continue to be members of an ICAO COSCAP, which remains an ICAO project/programme; as it does not have a separate legal identity. It will therefore be classified under the GASOS as an RSOO capable of only carrying out Level 1 functions. If, as proposed, the experts and inspectors employed by the COSCAP are designated as Operational Assistance (OPAS) personnel, it may then be possible that Level 2 services can be delivered to States. However, the COSCAP's role will still be limited to the Level 1 function of coordinating the availability of technical expertise to the States. Delegation with respect to Level 2 will made by States to the individual inspector or expert and not to the COSCAP itself. With respect to the SA-ASOO under the Scenarios B1, B2 and B3, both the RSOO and its staff will have the same status as in Scenario A. and the SA-ASOO will still be classified as providing Level 1 functions.

In Scenario C, the SA-ASOO is provided its own legal personality through the establishment of its own its own treaty. The SA-ASOO is therefore able to employ its own staff and enter into agreements with its Member States, in order to accept delegations of functions. As such, the RSOO is able to undertake Level 2 functions and even, at a later stage, Level 3 functions on behalf of its States. Depending on the level of delegation, the SA-ASOO, as a fully autonomous interGovernmental organization, could apply for ICAO classification at either Level 2 or Level 3. While final decisions are yet to be made on the GASOS system it is highly likely that it will proceed in a manner similar to that envisaged. To provide an Overview of the GASOS concept, an extract from the present GASOS Concept of Operations Paper is attached as Annex C.

The objectives and functions of the RSOO under the various Scenarios will largely not change and could be considered as 'undertaking Level 2 activities on behalf of specific States, resulting in recommendations to the CAA for specific outcomes'. The details of functions can be considered as similar to the data provided of CAA needs under Tables 8.1 and 8.2. The amount and coverage of actual tasks undertaken by the RSOO will depend entirely on the Scenario/s selected but will cover the specific tasks as described in Table 8.3.

## **14. CONSTRAINTS AND ASSUMPTIONS**

### **14.1 Before the Study**

The Feasibility Study team of well-qualified and experienced experts on the subject of RSOO and COSCAP-SA, including prior exposure to the workings of ICAO, EASA and the SA States, was assembled at fairly short notice. Given the number and diversity of experts involved, the allocation of work days for carrying out the Feasibility Study was limited.

The time frame of the Study was dependent on a count-back from the agreed COSCAP-SA SC Meeting date in late 2018 and this constrained the available time for the on-site Study section of the Research Phase. As a result, preparatory time available for the Study and the time spent in each SA State was severely constrained.

In advance of the mission a comprehensive questionnaire was prepared by the team and distributed to the CAAs and MoTs of the SA States. The questionnaires were sent out a reasonable time in advance of the missions to allow the States time to develop a response. It is difficult to provide sufficient background and detail to recipients of a detailed, policy and technical questionnaire, however every attempt was made to do so. Many CAA's however had problems providing responses in advance of the team visit and elected to wait for without further explanations from the Team. This meant that the team effectively used the questionnaire as a guide for discussions rather than a preparatory research tool, thereby constraining, to a degree, effective research.

### **14.2 During the On-site Study**

The limited time available to carry out the missions to the seven States, was considered a constraining factor. This limited time was due to a combination of factors including the availability of experts and the need to have a final completed Study in time for the COSCAP-SA SC Meeting later in 2018. With only 1.5 - 2 days available per State, discussions with the SA State representatives had to be strictly limited in time. Even though the team endeavoured to obtain as much information as possible during their short visits to the States, a constraining factor was that individual team members/specialists were unable to have a team discussion after discussions with a CAA to consider answers provided and then have time for further discussions with the organisation to clarify issues or identified concerns. As a result, a number of assumptions had to be made. This problem was exacerbated as some national representatives were not fully aware in advance of the subject matter of the meetings.

In all seven SA States visited, the team had requested a meeting with the Director General of Civil Aviation. However, due to DG posts not filled or only filled in acting capacity or due to DGs not being available for the meetings, in most of the seven SA States the team only met with Deputy DGs or Directors/Heads of Departments and their staff. Thus, the team had to assume that responses received from the members of the CAA's met represented the official views of the DCA/CAA. In order to confirm these assumptions, the summaries prepared of the meetings held with the delegations were sent to the CAAs and their concurrence sought. All of the States provided the Team with the DGs concurrence to the summary report of the meetings or provided slight amendments which were accepted and incorporated into the summary reports reflected in this Study report.

In all seven SA States visited the team had requested a meeting with appropriate representatives from the Ministry of Transport, but only in Bhutan and Nepal was this meeting possible, for different

reasons. Based on the input received from the CAAs and specific questioning on the likely Ministerial views, the team had to assume that the views of the MoTs in the other five States are in principle in line with the views of their CAAs in regard to the establishment of a Level 2 RSOO, which was confirmed by many of the State CAAs

#### **14.3 During the Research and Analysis Phases**

COSCAP SA is presently preparing for an extension into Phase V of the Programme (2019-2024). The decision on the scope and objectives of Phase V is to be discussed and agreed at the SC meeting, now to be held in January 2019. The deliberations of the SC in relation to Phase V will be based on a revised ICAO Programme Document, however this detailed document is still under drafting and could not be made available to the Team. Therefore the Team does not have a detailed view of the projected Phase V, although a draft of the Outcomes and Objectives of Phase V was provided.

The draft Outcomes and Objectives of Phase V had thus to be considered aspirational as they are dependent on the agreement of the SC, including decisions on the allocation of additional resources. Conversely, Phase IV of COSCAP-SA is nearly complete and solid achievements can be identified. For comparison purposes therefore the present Phase IV had to be assumed as the baseline for comparisons with a move to an RSOO Level 2.

There is a need for the work being undertaken via COSCAP-SA to be continued pending a decision on the Feasibility Study and the implementation of that decision. It is assumed that, if agreed at the next SC meeting, Phase V will commence in early 2019. The team is working on the assumption that preparations for a move to an RSOO Level 2 can begin in parallel sometime early during COSCAP Phase V.

It is not confirmed if further funding support will be provided for SARI and therefore the SARI project may conclude at the end of 2020. There are indications that the work of harmonisation will continue to be supported post 2020 by a Euro-centric mechanism, yet to be defined. Considering the strong support voiced by all SA States for a continuation of SARI activities, this Study assumes that the resources needed for these tasks to be performed will be picked up and continued in an RSOO Level 2.

An important constraining factor for the development of a solid business case for a RSOO Level 2 is the fact that the CAAs do not have any activity-based costing systems in place. This makes it difficult to obtain information about the costs incurred by the States for performance of particular tasks (e.g. development of a new regulation).

Similarly, detailed reports of key performance indicators for COSCAP-SA have not been available to the Study team to support a retrospective evaluation of COSCAP-SA. Neither has the formula for COSCAP-SA cost-sharing among SA States been updated taking into account current traffic data etc. Similarly, detailed reports of key performance indicators for COSCAP-SA have not been available to the Study team to support a retrospective evaluation of COSCAP-SA. Neither has the formula for COSCAP-SA cost-sharing among SA States been updated taking into account current traffic data etc.



## **15. POTENTIAL WEAKNESSES IN THE ANALYSIS, ALONG WITH THEIR POSSIBLE INFLUENCE ON INTERPRETATIONS AND CONCLUSIONS**

As previously mentioned (see above, Assumptions and Constraints), the team experienced some constraining factors during the various phases of the Study and were therefore forced to make a number of assumptions. Making assumptions of course has the potential to weaken the strength of the analysis. Given the low significance of the constraints and the impact the assumptions is considered to have had on the interpretations and conclusions developed for the three Scenarios, it can be concluded the Study is correctly describing the various Scenarios, including the advantages and disadvantages of each option.

The lack of detailed quantified information about COSCAP-SA activity levels and the lack of information available from Member States about cost savings made possible by COSCAP-SA meant that the Study team had to rely on its expert judgements. Nevertheless, the team is of the view that its evaluation of the Scenarios is sufficiently robust for the purpose of making decisions. It strongly recommends that the RSOO-SA be equipped with strong management systems so that its performance can be evaluated on an on-going basis and that its costs and levies/fees can be justified in a transparent way. The team also recommends that Member States develop a capacity to carry out activity-based costing so that they are in a position to evaluate the benefits received.

During the fact-finding missions the team concluded that consultations on the possibility to run COSCAP-SA based on a treaty under SAARC could not be considered mature enough. Similarly, it was recognised that the development of a MoU between SAARC and EASA and/or ICAO was not discussed enough, which in both cases could be argued to have an impact on the analysis. However, similar to the issue on financial data, the team found during the Analysis Phase that this would not significantly impact interpretations and conclusions regarding the legal basis and the governance of the Scenarios.

The factors that has been considered include the following aspects:

- There have been no responses from Afghanistan and no visit possible, i.e. not possible to include any points from Afghanistan in the analysis.
- Questionnaires have not been completely filled by CAAs of SA States, not filled at all by most MoTs, but the fact finding missions are considered to have minimised the impact of this.
- Financial data from SA States and from ICAO on COSCAP-SA are lacking in detail.
- The details of Phase V of COSCAP-SA are not available; therefore Phase IV has been used as the baseline when developing options for the Scenarios.
- Feasibility Studies of comparative RSOOs have not been released by the Member States, therefore not available to the team.
- SAARC consultations on charter and MoUs, while promising, are not mature enough yet.
- EASA and ICAO consultations on MoU with SAARC are not mature enough yet.
- The ICAO GASOSA system is still in its formative stage and is awaiting approval. The effect of this and any potential changes to the system forecast cannot be fully anticipated.

In summary, the Study team considers that the potential weaknesses identified in the analysis do not have a significant impact on the interpretations and conclusions presented in this Study.

## **16. ROADMAP TO MOVE FORWARD FROM STATUS QUO**

Discussions with a limited number of Directors General of SA and an incomplete representation of CAAs at the required level at the Review Meeting in Bangkok in September did not provide firm directions to the Feasibility Study team. There are indications that the likely direction will be to first adopt an 'easy and fast' solution (Scenario A) and use this to provide some time while moving to a further, more effective and sustainable Scenario; either one of the Bs or C.

It is likely therefore that a Roadmap may have to meet either of these circumstances:

1. Adopt Scenario A as a short term outcome in preparation for movement to one of the B Scenarios as a permanent outcome.
2. Adopt Scenario A as a short term outcome in preparation for movement to Scenario C as a permanent outcome.

In this circumstance it is difficult to provide a definitive Roadmap, however the following may be considered as conceptual guidance:

1. Decisions on directions made by MS at the January 2019 COSCAP-SA Steering Committee meeting, including on Phase V.
2. Based on this decision the development of an Implementation Plan, covering directions, timings, requirements, legal issues, priorities, risks and staffing, is developed as part of a 'Planning Phase'.
3. The 'Timings' section of the Implementation Plan includes a timeline and actions required sequentially, with an emphasis on prioritising difficult or longer term tasks for early action.
4. A high priority is placed within the Implementation Plan on the need for early and effective consultation with all Stakeholders (State and International; Government and Industry) so as to 'socialise' the decisions made by the DGs.
5. If a phased approach of Scenario adoption is decided by the DGs, required outcomes for each Scenario in the Implementation Plan are clearly defined.
6. The draft Implementation Plan is provided to DGs, discussed and amended as required and adopted as the 'roadmap/blueprint' for movement to the SA-RSOO, of whatever form.
7. Adoption of the Implementation Plan completes the Planning Phase and allows movement to the Implementation Phase.

Detail beyond this will only be possible after decisions are made in relation to specific Scenarios. However, the concept of an Implementation Plan will be very similar; only the detail will change.

## 17. CONCLUSIONS

Analysis of the data gathered during the Research Phase and discussions with DGs/CAA Representatives, ICAO and EASA has allowed the following conclusions:

1. The COSCAP-SA has provided varying amounts of Level 1 support to CAAs with differing degrees of effectiveness over its 20 year lifespan.
2. The majority of SA States agree the need for an RSOO in some form to provide various amounts of Level 1 and Level 2 support to the CAAs as required.
3. The adoption of COSCAP-SA Phase V as it is presently envisaged will NOT provide the Level 2 support required by many CAAs.
4. The various Scenarios identified by the Feasibility Study will provide the capability of an RSOO providing Level 2 support; albeit with different amounts of support varying from minimal to substantial.
5. Any Level 2 tasks to be performed by the RSOO requires resolving the delegation arrangements to the satisfaction of ICAO.
6. The SACBM developed by COSCAP-SA is an effective mechanism and should be incorporated into any solution for an RSOO, and potentially enlarged.
7. Any Scenario and RSOO 'design' to move forward effectively must be able to be assessed as acceptable under the ICAO GASOS Programme.
8. The financial cost in adopting any of the B or C Scenarios can be readily covered sustainably by the adoption of a minimal passenger service charge or a similar arrangement while providing a substantial cost/benefit ratio to the State.
9. The lowest value Scenario A will meet the requirement of no additional costs to CAAs, but will only marginally increase EI and safety in various States.
10. The B Scenarios provide a capability of increasing Level 2 activities to support CAAs considerably; however each of them has potential risks of working through SAARC, the legal basis for staff and continuation of conflict of interest concerns.
11. Scenario C is the only solution which will meet all of the requirements of CAAs and can be assessed by ICAO GASOS as an organisation capable of providing Level 2 support.
12. The Treaty required under Scenario C can be drafted quickly and, because it requires only ascension rather than ratification, can relatively quickly be agreed by at least two or preferably more States to allow formation of the RSOO for SA.

## **18. RECOMMENDATIONS**

### **18.1 Evolution, Sequencing and Transition**

It is recommended that the CAAs of the SA Member States agree a two phased approach to the evolution of the RSOO-SA with Phase 1 being the adoption of Scenario A and Phase 2 the movement to Scenario C.

It is further recommended that this approach be facilitated initially by the development of an Implementation Plan to cover both Phases, including concurrent action to shorten, as far as possible, the timeframe that Scenario A is in force as continued SARI funding through EU-SA APP will likely cease before the end of 2020.

## **19. ANNEXES**

**19.1** Annex A : Copy of the Beijing Declaration

**19.2** Annex B : Copy of the Banjul Accord Group Aviation Safety Oversight Organization (BAGASOO) Agreement

**19.3** Annex C : Extract from GASOS Concept of Operations Paper

## Declaration of Asia Pacific Ministerial Conference on Civil Aviation

- 1) We, the Ministers from the Asia and Pacific States, responsible for Civil Aviation, met in Beijing, China from 31 January to 1 February 2018, on the occasion of the Asia Pacific Ministerial Conference on Civil Aviation, organized by the International Civil Aviation Organization (ICAO);
- 2) Mindful of the obligations as Contracting States to the Convention on International Civil Aviation signed on 7th December 1944 (also known as the Chicago Convention);
- 3) Considering the importance of air transportation world-wide for social and economic development (the Global Air Transport Industry supports almost 62.7 million jobs worldwide and contributes US\$ 2.7 trillion to Global Gross Domestic Product (GDP), equivalent to 3.5% of global GDP and US\$ 664.4 billion aviation direct economic impact);
- 4) Recognising that the Asia and Pacific Region has become the world's largest aviation market in terms of available seat-kilometres and generates the world's second largest share of international revenue passenger-kilometres, and will continue to grow with corresponding air traffic capacity, efficiency and safety challenges;
- 5) Recognising that there are various programmes, objectives and targets currently being pursued under the ICAO "No Country Left Behind (NCLB)" initiative to assist States in capacity development in order for States to derive maximum social economic benefits from aviation, let aviation contribute ultimately to the realisation of the international development priorities, particularly the United Nations 2030 Agenda for Sustainable Development, and play its important role in the building of a community of shared future for mankind;
- 6) Recognising that the ICAO Global Air Navigation Plan (GANP) and the Global Aviation Safety Plan (GASP) set out regional expectations, priorities and targets for States, agreed at regional fora such as the Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) and the Regional Aviation Safety Group (RASG-APAC) and reflected in national planning frameworks;
- 7) Recognising that there are existing bilateral and multi-lateral working relationships and platforms, such as the Asia and Pacific Directors General of Civil Aviation (APAC DGCA) Conference, APANPIRG, RASG-APAC; and ICAO-led initiatives (e.g. Aviation Safety Implementation Assistance Partnership (ASIAP), the Combined Action Teams (CAT));
- 8) Recognising the importance of active participation of States through their experts attending ICAO fora and other international meetings, training, seminar and workshop events to advance civil aviation development in the Region;
- 9) Acknowledging that the existing regional relationships and partnerships are evolving with meaningful technical cooperation and assistance programmes (e.g. Cooperative Development of

Operational Safety and Continuing Airworthiness Programmes (COSCAPs), Flight Procedure Programme (FPP));

- 10) Mindful of the importance and impact of aviation safety and efficient air navigation services on the sustainable development of air transport;
- 11) Recognising that the ICAO Universal Safety Oversight Audit Programme (USOAP) has been effective in helping States focus on safety oversight capabilities and to address gaps in the implementation of ICAO Standards and Recommended Practices (SARPs) and regulatory safety oversight;
- 12) Considering the Asia and Pacific Region is diverse (e.g. in terms of capacity and civil aviation development with USOAP Effective Implementation (EI) scores ranging from 5% to over 90%), there is a compelling need for stronger regional cooperation, partnerships and engagement to continuously improve aviation safety;
- 13) Recognising the ICAO "Next Generation of Aviation Professionals (NGAP)" initiative aimed at addressing the need for aviation professionals in various fields and the importance of having adequate qualified and competent aviation professionals to meet the challenges of the significant aviation growth experienced by the Region;
- 14) Considering the need to support the timely implementation of the Asia/Pacific Seamless Air Traffic Management (ATM) Plan and its elements to enhance safety and efficiency of air navigation services to cater for the projected air traffic growth in the Region;
- 15) Mindful of the need to take into account resolutions agreed at future ICAO Assembly Meetings including those on GASP and GANP;
- 16) The Ministerial Conference agrees to the Beijing Declaration and the Ministers commit to the following:

## **1.0 Aviation Safety**

### **1.1 Commit to:**

- (a) Progressively enhance safety oversight capability to achieve a USOAP EI score higher or equal to the global average by 2022;
- (b) Implement an effective State Safety Programme (SSP) by 2025; (c) Endeavour not to have any Significant Safety Concerns (SSCs) under the USOAP Continuous Monitoring Approach (CMA), and to resolve any future SSCs within the time frame agreed with ICAO;
- (d) Certify all aerodromes used for international operations by 2020;

(e) Use data driven methodologies to identify high risk categories of occurrences (e.g. runway safety, loss of control in flight and controlled flight into terrain), and implement collaborative solutions to reduce accident rates and fatalities in the Region; and

(f) Include aviation safety in national planning frameworks such as National Development Plans (NDPs) supported by robust Civil Aviation Master Plans.

1.2 Promote regional Government and industry collaboration for sharing of best practices in safety management through the Regional Aviation Safety Group (RASG).

## **2.0 Air Navigation Services**

2.1 Commit to implementation by 2022 of the Asia/Pacific Seamless Air Traffic Management (ATM) Plan to enhance ATM capacity and harmonisation in the Region, including a focus on:

(a) Transitioning from Aeronautical Information Service (AIS) to Aeronautical Information Management (AIM) System;

(b) Performance Based Navigation (PBN) implementation;

(c) Common ground/ground telecommunication infrastructure to support Air Navigation Services (ANS) applications;

(d) An enhanced level of civil/military cooperation;

(e) Enhanced surveillance capability including Automatic Dependent Surveillance-Broadcast (ADS-B) technology;

(f) Air Traffic Flow Management/Collaborative Decision Making (CDM) implementation for high density airports; and

(g) Air navigation in national planning frameworks such as National Development Plans (NDPs) supported by National Air Navigation Plans.

2.2 Promote sharing of best practices in the provision of ANS including Aeronautical Search and Rescue (SAR), Meteorological Services for International Air Navigation (MET) and Air Traffic Flow Management (ATFM) through regional cooperation and enhanced coordination.

## **3.0 Accident Investigation**

3.1 In accordance with the Chicago Convention, commit to either establish an accident investigation authority that is independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation or where appropriate develop a bilateral, sub-regional or regional partnership to support the establishment of accident investigation capabilities to serve the Region, sub-region or State.



#### **4.0 Human Resource Development**

4.1 In line with the ICAO initiative on "Next Generation of Aviation Professionals (NGAP)", accord priority to human capital development to provide sufficient qualified and competent aviation professionals to support the Region's growing needs, including where appropriate:

(a) Establish access to quality training; and

(b) Encourage sharing of resources bilaterally and/or multi-laterally as well as with industry partners.

4.2 Promote the attraction of new talent and the retention of trained, qualified and experienced personnel among State Aviation Organisations (e.g. regulators, air navigation service providers).

## **BANJUL ACCORD GROUP AVIATION SAFETY OVERSIGHT ORGANIZATION AGREEMENT**

### **PREAMBLE**

**NOTING** the principles and provisions of the Convention on International Civil Aviation signed in Chicago on 7 December, 1944, and without prejudice to the existing bilateral air services agreements;

**HAVING REGARD** to the Treaty Establishing the African Economic Community signed on 3 June 1991, in particular Article 61 relating to the integration of air transport and Article 10 relating to the authority of the Assembly of Heads of States and Governments to take decisions;

**RECALLING** the Yamoussoukro Declaration on a new African Air Transport Policy adopted on 7 October 1988 whose primary objective is to create a conducive environment for the development of intra-African and international air services;

**RECALLING** the Decision signed by African Ministers responsible for Civil Aviation at Yamoussoukro on 14 November, 1999 with a view to accelerating the implementation of the Yamoussoukro Declaration;

**WHEREAS** Cape Verde, Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone (hereinafter referred to as "Banjul Accord Group of States") signed the Agreement for the Establishment of the Banjul Accord Group (hereinafter referred to as "the Banjul Accord Group Agreement") on 29 January 2004;

**WHEREAS** Cape Verde, Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone are Contracting States to the Convention on International Civil Aviation signed in Chicago on 7 December 1944 (hereinafter referred to as the Chicago Convention") whose main objectives are the safe and orderly development of international civil aviation through the implementation of international standards and recommended practices relating to the safety and security of air transport;

**HAVING** regard to the Banjul Accord Group Agreement which requires the Member States to harmonize their policies and procedures on civil aviation and foster the development of International Civil Aviation through cooperative arrangements;

**RECALLING** the Memorandum of Understanding (MoU) signed on 29 January 2004 among the Banjul Accord Group of States concerning cooperation in the enhancement of aviation safety and capacity building within the Member States;

**NOTING** the Letter of Understanding signed on 15 December 2008 between the Member States of the Banjul Accord Group and the ICAO ACIP on the provision of support to the BAG Member States on the basis of ICAO Council Decision C-DEC 185/6 of 3 November 2008, to include the framework, implementation plan, operational regulations and guidance material for the effective operation of the BAGASOO and the BAGAIA;

**NOW THEREFORE** the States of Cape Verde, Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone;

**HAVE AGREED AS FOLLOWS:**

## **ARTICLE 1**

### **Definitions**

**Agreement** means this Agreement and any Appendix, Annex or Amendment hereto;

**BAG Agreement** means the Banjul Accord Group Agreement for the Establishment of the Banjul Accord Group signed at Banjul on 29 January 2004;

**BAGASOO** means Banjul Accord Group Aviation Safety Oversight Organization;

**Board** means the Board of Directors of the Organization established under Article 7;

**Chicago Convention** means the Convention on International Civil Aviation signed in Chicago on 7 December 1944;

**Civil Aviation Authority** means the Civil Aviation Administration of a Banjul Accord Group Member State;

**Co-operative Inspectorate Scheme (CIS)** means a pool of experts selected from among the Banjul Accord Group of States;

**Council of Ministers** means the Ministers of the Banjul Accord Group States responsible for Civil Aviation in the respective Member States;

**Directors General** means the Heads of Civil Aviation Administrations of the Banjul Accord Group Member States;

**Head of Secretariat** means the Head of Secretariat of the Banjul Accord Group.

**ICAO** means the International Civil Aviation Organization;

**ICAO SARPs** means International Standards And Recommended Practices as contained in the Annexes to the Chicago Convention;

**Memorandum of Understanding (MoU)** means the Memorandum of Understanding concerning cooperation in the enhancement of aviation safety and capacity building within the Banjul Accord Group region signed by Cape Verde, Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone on 29 January 2004 in Banjul;

**Member States** means a State party to the Banjul Accord Group Agreement;

**Non-Member State** means States that are not members of the Banjul Accord Group.

## **ARTICLE 2**

### **Establishment of the BAGASOO**

- (1) The Member States hereby establish the Banjul Accord Group Aviation Safety Oversight Organization.
- (2) The BAGASOO is established as a self-accounting Institution of the Banjul Accord Group.
- (3) The BAGASOO shall possess legal personality and in particular, full capacity to
  - (a) enter into a contract;
  - (b) acquire, and dispose of movable and immovable property (where appropriate); and
  - (c) sue and be sued.

## **ARTICLE 3**

### **Scope**

This Agreement governs the co-operation of BAG Member States in the area of civil aviation safety oversight.

## **ARTICLE 4**

### **Objectives**

- (1) The objectives shall be to:
  - (a) promote the safe and efficient use and development of civil aviation within and outside the Member States;
  - (b) assist the Member States in meeting their safety oversight obligations and responsibilities under the Chicago Convention and its safety-related Annexes and Documents; and
  - (c) promote the implementation of industry best practices within the Member States as defined in the ICAO Global Aviation Safety Plan (GASP)
- (2) Notwithstanding Article 8.1.3.1 of the BAG Agreement provide the Member States with an appropriate forum and structure to discuss, plan and implement common measures required for achieving the safe and orderly development of international civil aviation through the implementation of international standards and recommended practices relating to the safety of civil aviation.

## **ARTICLE 5**

### **Functions**

The functions of the BAGASOO shall be to: -

- (a) support Member States to strengthen their institutional frameworks in aviation safety and to assist in the development of a harmonized regulatory regime for the Member States;
- (b) provide the Member States a focal point that deals with issues relating to certification and surveillance with a view to harmonize and standardize all related policies and procedures;
- (c) provide for the expansion of the Government Safety Inspector (GSI) training programme with the aim of augmenting national inspectors' technical knowledge and qualifications;
- (d) develop and implement a training programme for the purpose of enhancing the technical and other required skills and knowledge of civil aviation personnel in the Member State;
- (e) perform certification and surveillance tasks on behalf of Member State CAAs as required;
- (f) participate, in respect to all Member States irrespective of the status of their safety oversight capability, in all initial certification exercises for the purpose of monitoring and ensuring the uniform application of common standards within the BAG Sub-Region;
- (g) co-ordinate civil aviation safety oversight activities amongst Member States;
- (h) liaise with ICAO and Member States to ensure that aviation safety oversight activities of the Member States are in line with the ICAO objectives and plans;
- (i) monitor and provide inputs to Member States on the formulation of ICAO SARPS;
- (j) evaluate the status of aviation safety in the Member States through the conduct of audits and other quality assurance activities in the area of aviation safety;
- (k) provide information to the Member States and recommend necessary interventions or corrective measures for the resolution of constraints or deficiencies;
- (l) assist the Member States to meet or comply with ICAO SARPs, national standards and regulations in force;
- (m) plan and facilitate the sharing between Member States of technical expertise and facilities in civil aviation;

- (n) provide advisory services and assistance as the Member States may require;
- (o) provide technical assistance to non-Member States, subject to the approval of the Board;
- (p) mobilize and solicit technical and financial resources from external sources;
- (q) develop and implement a Regional Safety Programme including reporting systems such as the Confidential and Voluntary Incident Reporting System (CVIRS) on behalf of Member States;
- (r) assist aviation industry in the Member States in the development and implementation of Safety Management Systems (SMS);
- (s) establish and maintain relations with other regional safety oversight systems including Regional Safety Oversight Organizations (RSOOs) in all areas of civil aviation to facilitate the transfer of knowledge and expertise and adoption of best industry practices;
- (t) develop and implement programmes that are better implemented on a sub-regional or regional basis; and
- (u) perform any other duties that may be necessary for the proper implementation of its civil aviation safety oversight functions under the Agreement.

## **ARTICLE 6**

### **Composition**

The BAGASOO shall consist of:

- (a) the Board;
- (b) the Executive Director;
- (c) the Secretariat; and
- (d) such other bodies and officers as approved by the Board.

## **ARTICLE 7**

### **Composition of the Board**

- (1) The Board shall be the governing body of the BAGASOO.
- (2) The Board shall consist of the following members:
  - (a) the Directors General; and

- (b) the Executive Director.

## **ARTICLE 8**

### **Functions of the Board**

- (1) The functions of the Board shall be to develop policies and to give general directions on the implementation and achievement of the objectives and functions of the BAGASOO.
- (2) Without limiting the generality of paragraph 1 of this Article the Board shall:
  - (a) appoint an Executive Director and other senior staff of the BAGASOO and approve their terms and conditions of employment;
  - (b) review the performance of the Executive Director;
  - (c) approve the staff service rules, policy and procedures for the BAGASOO;
  - (d) consider reports submitted to it by the Executive Director;
  - (e) establish Technical Committees in accordance with Article 13;
  - (f) approve generic civil aviation regulations, manuals and procedures developed by the Technical Committee for adoption and use by the Member States and the BAGASOO;
  - (g) approve the financial structure, programme of activities and budget for the BAGASOO on an annual basis and approve a formula for the contributions to be made to the approved budget by the respective Member States;
  - (h) examine and approve the expenditure and financial Statements of the BAGASOO;
  - (i) review and approve the annual work programme of the BAGASOO;
  - (j) consider and determine matters relating to the disposal of assets of the BAGASOO and the settlement of outstanding commitments in the event that activities of the BAGASOO are suspended as a result of the withdrawal of Member States in accordance with Article 22;
  - (k) assess and approve applications by non-Member States seeking assistance for technical expertise from the BAGASOO; and
  - (l) exercise such other powers and perform such other functions as may be conferred on it by the Banjul Accord Group Agreement or that may be necessary for the proper implementation of this Agreement.

## **ARTICLE 9**

### **Procedures of the Board**

- (1) The Board shall elect from its members a Chairperson and a Vice Chairperson at its first Ordinary meeting to serve for a period of one (1) year on rotational basis. A person shall not be elected to serve on the Board as Chairperson or Vice Chairperson for more than two consecutive terms;
- (2) The Chairperson or in the absence of the Chairperson, the Vice Chairperson shall chair all meetings of the Board;
- (3) If a Member of the Board is unable to attend a meeting of the Board, that Member may designate a representative to attend the meeting;
- (4) The designated representative shall, for the purpose of that meeting, have all powers, duties and responsibilities of the member of the Board for whom that person is acting, except the duty to act as Chairperson of the meeting;
- (5) The Board shall meet at least once in every six calendar months and may hold extraordinary meetings as and when necessary;
- (6) Extraordinary meetings of the Board shall be convened by the Chairperson when considered necessary or on the written request of at least two members;
- (7) Meetings of the Board shall be held at the Secretariat of the BAGASOO or such other place as the Board may decide.
- (8) The quorum for any meeting of the Board shall be four members of the Board at least two of whom shall be Directors General.
- (9) Each Director General is entitled to one vote and the Chairperson shall have a casting vote in the event of a tie in voting;
- (10) Decisions on all matters of the Board shall be made by consensus or a simple majority of the Members present and voting;

## **Article 10**

### **The Executive Director**

- (1) The Executive Director shall be appointed by the Board on such terms and conditions as the Board may determine.
  - (a) A person appointed as the Executive Director shall hold office for a period of three years renewable, for a maximum period of six years;
  - (b) The office of the Executive Director shall be filled on a competitive basis.
- (2) The Executive Director shall be the chief spokesperson of the BAGASOO and the



principal liaison between the Member States and the BAGASOO.

- (3) The Executive Director shall be responsible to the Board.
- (4) The Executive Director shall -
  - (a) organise Board meetings at the request of the Chairperson of the Board;
  - (b) coordinate the work of the Technical Committees and any Working Group that may be established;
  - (c) assign inspectors appointed under the Co-operative Inspectorate Scheme (CIS) to Member States for the purpose of conducting inspections and related duties;
  - (d) exchange information with the Member States and other relevant agencies;
  - (e) maintain a register of inspectors appointed under the Co-operative Inspectorate Scheme (CIS) and enter therein, in relation to each inspector the following information -
    - (i) State of origin;
    - (ii) technical specialty and qualifications;
    - (iii) a log of activities which the inspector has undertaken in relation to any Member State where he or she functions on behalf of the BAGASOO.
  - (f) maintain current data and information pertaining to the Civil Aviation Authorities of Member States on aviation organizations, aircraft registries, the number, categories and availability of licensed aviation personnel and other relevant matters;
  - (g) develop and maintain a website for the BAGASOO;
  - (h) develop for the approval of the Board, organizational policies, staff service rules and procedures;
  - (i) ensure the provision and management of technical support to Member States by the BAGASOO;
  - (j) organize and conduct audits at the request of Member States or as scheduled in the approved work programme for the purpose of assessing compliance with ICAO Standards and Recommended Practices (SARPs);

- (k) prepare, for the approval of the Board, an annual work programme of activities and budget for the BAGASOO;
- (l) prepare, at the end of each financial year but no later than 31<sup>st</sup> March of the following year, an annual report on the performance of the functions of the BAGASOO during the preceding year for submission to the Board.
- (m) make quarterly reports on the activities of the BAGASOO to the Board;
- (n) acts as Secretary to the Board; and
- (o) perform any other duty as may be assigned by the Board.

## **ARTICLE 11**

### **The Secretariat**

- (1) There shall be a Secretariat of the BAGASOO headed by the Executive Director.
- (2) The Secretariat of the BAGASOO shall be located in Abuja , Nigeria.

## **ARTICLE 12**

### **Composition and Staff of the BAGASOO**

- (1) The staff composition of the BAGASOO shall include the Executive Director, Technical and Administrative Managers and Technical Coordinators for each of the technical disciplines and any other staff as may be approved by the Board.
- (2) Inspectors appointed under the Co-operative Inspectorate Scheme (CIS) will be considered as officials of the BAGASOO during the period of performance of functions on behalf of the BAGASOO.
- (3) Upon the recommendation of the Executive Director, the Board may appoint Administrative and Technical Directors and Technical Coordinators for the different specialty areas.
- (4) All other staff shall be appointed by the Executive Director on the terms and conditions approved by the Board.

## **ARTICLE 13**

### **Composition, Procedures and Functions of the Technical Committees**

- (1) The Technical Committees shall consist of nominees of Member States and relevant regional and international organizations and agencies as approved by the Board

- (2) The composition and functions of each Technical Committee shall be appropriately documented and approved by the Board.
- (3) Without prejudice to the generality of paragraph 2, the Technical Committees shall be responsible for the review of comprehensive implementation programmes and the monitoring of the implementation of those programmes.
- (4) Decisions of the Technical Committees shall be made by consensus and shall constitute recommendations to the Board through the Executive Director with summaries of any dissenting opinions attached.
- (5) The Technical Committees shall meet as often as is necessary to perform their functions efficiently and expeditiously;
- (6) The Technical Committees may provide, as directed by the Board through the Executive Director, technical support to Member States and agencies or other entities within the Banjul Accord Group;
- (7) The Technical Committees shall review regulations and guidance material, and any other documents developed or recommended by the BAGASOO.

## **ARTICLE 14**

### **Role of the Member States**

The Member States shall:

- (a) adhere to their financial obligations to the BAGASOO;
- (b) implement harmonized regulations that meet ICAO SARPs for the governance of civil aviation safety and harmonized technical guidance materials to implement the regulations;
- (c) participate in activities of the BAGASOO aimed at assisting other Member States for purposes of civil aviation safety oversight functions and activities;
- (d) endeavour to implement a cost effective safety oversight system with a minimum regulatory burden but that meets ICAO SARPs so as to contribute to the competitiveness of the civil aviation industry within the BAG Sub-Region;
- (e) adopt and support measures and programmes for the development of human resources in civil aviation in the BAG Sub-Region including the development and establishment of training programmes for the technical personnel of the Member States; and
- (f) adopt and support measures to promote a safety culture in the region including promoting a comprehensive systems approach to safety management within the Member States by adopting and implementing the

## **ARTICLE 15**

### **Financial provisions**

- (1) The funds of the BAGASOO shall be derived from:

  - (a) contributions by the Member States through their respective Civil Aviation Authorities;
  - (b) revenue generated by Member States through charges and levies;
  - (c) revenue from the activities of the BAGASOO;
  - (d) grants, loans and donations from regional and international bodies; funding agencies and donor States; and
  - (e) any other sources as may be approved by the Board.
- (2) The Executive Director shall within 6 months before the commencement of each financial year prepare and submit to the Board for its approval an annual programme of activities and estimates of expenditure and income for the BAGASOO.
- (3) Where estimates of expenditure are required to be funded in whole or in part by contributions from Member States the Board shall determine the formula for contributions to be made by Member States to the approved Budget.
- (4) The BAGASOO may with the approval of the Board receive loans and grants required for meeting its obligations and for carrying out its functions.
- (5) The BAGASOO shall keep proper books of account of all its income and expenditure and proper records in relation to them.
- (6) (a) The accounts of the BAGASOO shall in respect of each financial year be audited by a team of Auditors appointed by the Council of Ministers as established under Article 9 of the Banjul Accord Group Agreement.

(b) The BAGASOO shall within four months after the end of each financial year submit to the Audit team the accounts of the BAGASOO for auditing.
- (7) The budget and accounts of the BAGASOO shall be kept and maintained in United States Dollars and any other suitable currency and the local currency of the Host State.
- (8) The financial year of the BAGASOO shall run from 1<sup>st</sup> January to 31<sup>st</sup> December of each year.

## **ARTICLE 16**

### **Neutrality of Personnel**

A person assigned to the BAGASOO or employed by the BAGASOO shall neither request nor accept instructions in relation to the performance of his or her duties from any other person or authority outside of the instructions of the BAGASOO.

## **ARTICLE 17**

### **Privileges and immunities**

- (1) The BAGASOO shall enter into an agreement with host State relating to the privileges and immunities to be accorded to the BAGASOO and its personnel.
- (2) Member States shall accord the BAGASOO and its personnel such privileges and immunities as may be necessary for the fulfillment of its objectives and the exercise of its functions.

## **ARTICLE 18**

### **Settlement of Dispute**

- (1) Any dispute arising between members States relating to the interpretation or application of this Agreement, shall in the first instance be settled by negotiation.
- (2) If the parties concerned fail to reach a settlement of the dispute by negotiation within 21 days they may proceed on either of the following:
  - (a) Either party shall notify the BAG Secretariat and request a settlement of the dispute by a committee of three Ministers of neutral Member States responsible for civil aviation with the following information:
    - Statement of the fact;
    - an evidence of breach or violation of the provisions of this BAGASOO Agreement; and
    - nominee Minister for the Committee of Ministers.
  - (i) Upon receipt of the request, the BAG Secretariat shall within 14 days notify the party to the complaint filed and request an answer to the complaint and its nominee State for the Committee of Ministers which shall be provided within 14 days. Within 14 days of receipt of the answer, the BAG Secretariat shall refer the complaint and the answer to the nominated Ministers who shall by agreement appoint the Minister of a third Member State as the third committee member who shall act as chairman of the Committee of Ministers. The Ministers shall meet to address the issues referred and in this connection, may call upon, if necessary, experts to advise it. The Committee shall endeavour

to provide a written decision within 30 days of the completion of the hearing.

- (ii) Any notice to be served shall be sent to the Chairman of the committee of Ministers by registered mail, fax or email. The chairman of the committee or the Secretariat will provide the address for service as the case may be.
- (b) Agree to refer the dispute to some person or body; if they do not so agree, the dispute shall at the request of any of them, be referred for decision to an arbitral tribunal composed in accordance with Article 19 of the BAGASOO Agreement or, in the alternative to any arbitration mechanism composed under the African Union (AU).
- (3) The Parties agree that the decision of the committee of Ministers or such arbitral tribunal or other person or body including arbitration mechanism of AU, and any provisional measures indicated by it pending its final decision, shall be binding on the parties to such dispute.
- (4) Any Member State, which fails to apply any decision of the committee of Ministers, an arbitral body including the arbitration mechanism of the AU, shall be subject to sanctions by the Plenary as endorsed by the Council of Ministers.
- (5) The BAG Secretariat shall notify the Member States accordingly.
- (6) Notwithstanding the provisions above, sanctions may be lifted in the event that the sanctioned party complies with directives or decisions of the committee of Ministers or arbitral body including the arbitral mechanism of the AU.

## **ARTICLE 19**

### **Arbitration**

- (1) Arbitration shall be by a tribunal of three arbitrators who shall be constituted as in the following manner:
  - (a) within 30 days of the receipt of a request for arbitration, each Party shall appoint one arbitrator. Within 60 days of the appointment of the second arbitrator, the two arbitrators shall by agreement appoint a neutral State as the third arbitrator, who shall act as President of the tribunal.
  - (b) if either Party fails to name an arbitrator, or if the third arbitrator, is not appointed in accordance with sub-paragraph (a) of this paragraph, either Party may request the Secretary General of the AU to appoint the necessary arbitrator or arbitrators within 30 days.
- (2) Except as hereinafter provided or as otherwise agreed by the parties, the tribunal shall determine the limits of its jurisdiction and shall establish its own procedural rules. The tribunal, once formed, may recommend interim relief measures pending its final determination. At the direction of the tribunal or at the request of either of the parties,

a meeting to determine the precise issues to be arbitrated and the specific procedures to be followed shall be held not later than 15 days after the tribunal is fully constituted.

- (3) Except as otherwise agreed or as directed by the tribunal, each party shall submit a memorandum within 45 days of the time the tribunal is duly constituted. Each party may submit replies within 60 days of submission of the memorandum of the other party. The tribunal shall hold a hearing at the request of either party or on its own initiative within 15 days after replies are due.
- (4) The tribunal shall attempt to render a written decision within 30 days of completion of the hearing or, if no hearing is held, after the date both replies are submitted. The decision shall be taken by majority vote.
- (5) The Parties concerned may submit requests for clarification of the decision within 15 days after it is rendered and any clarification given shall be issued within 15 days of such request.
- (6) The parties shall share the expenses of the tribunal including the fees and expenses of the arbitrators equally.
- (7) The decision of the tribunal shall not be open to appeal and must be complied with within the time period(s) established therein.

## **ARTICLE 20**

### **Emergency and War**

In the case of war, the provisions of this BAGASOO Agreement shall not affect the freedom of action of any of the Member States affected, whether as belligerents or as neutrals. The same principle shall apply in the case of any Member State, which declares a State of national emergency and notifies the fact to the Group.

## **ARTICLE 21**

### **Denunciation**

- (1) Any Party that has withdrawn from the Banjul Accord Group Agreement shall be deemed to have withdrawn from the BAGASOO Agreement. The withdrawal shall take effect one year after the date of receipt by the Head of Secretariat of the formal notification or intention to withdraw from the Banjul Accord Group Agreement. The withdrawal shall be without prejudice to any obligation incurred by the withdrawing Party under this BAGASOO Agreement prior to such withdrawal. This BAGASOO Agreement shall continue to be in force thereafter with respect to the other Parties
- (2) The provisions of the Banjul Accord Group Agreement relating to the rights and obligations of a Member State that has been suspended or expelled from the Group shall apply to the BAGASOO Agreement.

## **ARTICLE 22**

### **Amendment of the Agreement**

- (1) The Agreement may be amended by the agreement of the Member States.
- (2) Any Member State or the Board may submit proposals for the amendment of this Agreement.
- (3) Any proposals for amendment shall be submitted in writing to the Head of Secretariat who shall, within thirty (30) days of its receipt, communicate the proposed amendment to the Member States.
- (4) The Member States which wish to comment on the proposal shall do so within ninety (90) days from the date of dispatch of the proposal by the Head of Secretariat.
- (5) After expiration of the period prescribed under paragraph 4 of this Article, the Head of Secretariat shall request a meeting of the Legal Committee to consider the proposals and any comments thereon received from the Member States. The recommendations of the Legal Committee shall be submitted to the Council of Ministers.
- (6) Any amendment to this Agreement shall be valid only when adopted by the Council of Ministers and shall enter into force when signed by at least four of the Ministers responsible for civil aviation in the Member States.

## **ARTICLE 23**

### **Dissolution**

- (1) Subject to the provisions of the Banjul Accord Group Agreement the BAGASOO may be dissolved by the Council of Ministers.
- (2) On dissolution the assets of the BAGASOO shall revert to the Banjul Accord Group.

## **ARTICLE 24**

### **Transitional Provisions**

Notwithstanding Article 2 of the Agreement which establishes the BAGASOO, the COSCAP-BAG shall continue to operate until effective mechanisms are put in place for the efficient administration of the BAGASOO or by 31 December 2009 whichever comes first.



## **ARTICLE 25**

### **Entry into force**

This Agreement shall enter into force upon signature and incorporation in a decision by the Council of Ministers.

**IN WITNESS WHEREOF**, we the undersigned Ministers responsible for Civil Aviation duly authorized, sign this Agreement on behalf of our respective Governments on the day and year as specified.

**Done in Montreal, Canada this 30<sup>th</sup> day of June 2009, in three originals, English, French, and Portuguese languages, and each text being equally authentic.**

<b>State</b>	<b>Name and Title of Representative</b>	<b>Signature</b>
<b>The Republic of Cape Verde</b>		
<b>The Republic of The Gambia</b>		
<b>The Republic of Ghana</b>		
<b>The Republic of Guinea</b>		
<b>The Republic of Liberia</b>		
<b>The Federal Republic of Nigeria</b>		
<b>The Republic of Sierra Leone</b>		

## Extract from GASOS Concept of Operations Paper

### 3. GASOS overview

**3.1 Objective:** The main objective of establishing the GASOS is to strengthen State safety oversight and safety management capabilities by:

- i. Enabling the delegation of safety functions, as needed, by States to competent SOOs that have been assessed and recognized by ICAO; and
- ii. strengthening existing SOOs to make them more effective and efficient in supporting States.

### 3.2 Guiding Principles and Considerations:

- i. States maintain responsibility for safety oversight under the Chicago Convention.
- ii. GASOS is a voluntary programme and, in principle, is open to all SOOs. The application of an SOO to be recognized through GASOS is a voluntary decision of the organization. The use of recognized SOOs by States is also voluntary.
- iii. GASOS is an integral part of the ICAO strategy for reinforcing RSOOs, and should be seen by RSOOs as a means to support their reinforcement and recognition at global level, for providing safety oversight and safety management functions for States.
- iv. States are responsible to decide whether they want to discharge their safety responsibilities through full or partial delegation to one or more SOOs. In such cases, the States should:
  - decide if they call upon a recognized SOO, and which safety functions and levels of delegation they wish to implement; and
  - obtain assurance that the SOO capability remains valid in the context of State specific needs.
- v. A phased approach to the implementation of GASOS may be employed by ICAO in order to minimize risks related to assessment workload, depending on the outcomes of the business case and taking into account the advice of the ICAO GASOS Study Group.
- vi. GASOS will be based on a proven and credible methodology for the initial assessment and monitoring of a SOO's capability. The USOAP CMA methodology will be used and adapted as required for this purpose.
- vii. The GASOS assessment criteria will be maintained to be closely consistent with relevant USOAP-CMA PQs.
- viii. Consistency with high level GASP objectives, goals and targets will be maintained through the GASOS assessment methodology and assessment criteria.
- ix. Similarly, the assessment and monitoring of an SOO's capability will have to be performed by recognized competent personnel and the use of USOAP qualified auditors is therefore foreseen.
- x. GASOS will aim also at driving efficiency in safety oversight monitoring activities. Therefore, duplication of activities should be avoided to the maximum extent possible:
  - In the case of a State that is delegating certain safety functions to a recognized SOO, the scope and depth of USOAP-CMA activities for that State will be reduced, as applicable, depending on the functions delegated and the associated levels of delegation.
  - In case of an SOO applying for recognition under GASOS which is also subject to USOAP-CMA, the initial GASOS assessment will take credit of the latest USOAP-CMA outcomes, to the extent applicable.

- xi. Appropriate interfaces will be designed between GASOS and USOAP-CMA. Both programmes have different but complementary objectives, and both programmes have synergies.
- xii. Since GASOS is intended to contribute to the GASP long term strategic objective of achieving worldwide high safety oversight capabilities, it will be based on a principle of high level of technical capability.
- xiii. The GASOS programme will be managed by ICAO on a cost recovery basis, i.e. without seeking to make profits. Any unutilized revenue would be ring-fenced within the programme. Funding and technical resources mobilized from voluntary contributions by States, International Organizations and Industry is also a consideration.
- xiv. The GASOS programme will be based on the principle of transparency, with the aim to make information available to stakeholders and to the public to the extent possible.
- xv. The GASOS programme is also seen as contributing to the United Nations Sustainable Development Goals, in particular Goal 9 – Industry, Innovation and Infrastructure.

### **3.3 GASOS Description**

#### **3.3.1 Components of the system**

GASOS is a system:

- To assess, recognize and monitor the capability of SOOs to perform safety functions, as defined in the scope of recognition (safety functions and delegation levels), and
- To publish a Directory of ICAO recognized SOOs, including their scope of recognition (safety functions) for the use by States willing to delegate such functions.