INTERNATIONAL CIVIL AVIATION ORGANIZATION

MEETING OF CIVIL AVIATION AUTHORITIES

SEVENTH MEETING

(Salvador, Bahia, Brazil, 1–3 July 2002)

Agenda Item 6: Technical cooperation in the SAM Region

(Presented by the Secretariat)

Summary

This working paper presents a summary of the technical cooperation activities in the Region and their impact on the improvement of air navigation services and the institutional building of the various civil aeronautics authorities. Information is also provided on the activities of regional projects.

1. Introduction

1.1 Civil aviation plays a vital role in the social and economic development of the South American Region because of its limited ground transportation infrastructure. Even today, some areas in the Region can only be reached by air and air transportation becomes even more important during the rainy season. For that reason, the States in the Region are aware of the advantages of having an organised air transportation system, whose planning, development, operation and maintenance often require external technical cooperation and are frequently financed with limited resources.

1.2 Air transportation is, then, a highly useful instrument for promoting economic activity, social progress, cultural exchange and the exchange of scientific, technical and administrative expertise –all of which are activities essential to a modern organisation. It is for that reason that States in the Region are using increasing amounts of their own resources to cover the cost of the technical co-operation they need in order to keep their air transportation systems operating efficiently and to acquire the necessary inputs for the orderly, efficient and economic development of the supporting facilities.

1.3 ICAO coordinates the development of regional air navigation plans and, once they have been approved, focuses on their implementation through regional air navigation meetings and meetings of the regional planning and implementation groups in charge of coordinating implementation dates, taking into account the implementation plans and possibilities of the States. Subsequently, the corresponding ICAO Regional Offices discuss plan implementation with the States in order to provide them with advice and as much assistance as possible.

2. Technical cooperation in the SAM States

2.1.The main purpose of the ICAO Technical Cooperation is to help States improve economic and social conditions by increasing their air transportation capabilities, through assistance in developing their trained personnel and their civil aviation infrastructure and institutions--all of this, of course, in keeping with the priorities of national civil aviation development plans. Any ICAO cooperation or individual project must be carried out within a specific time frame, although it may be necessary on occasion to extend the duration of a project due to unforeseen delays or the appearance of new requirements. The purpose of the ICAO projects is to help establish favourable conditions for States to carry out activities on their own as soon as possible.

2.2.The assistance that ICAO provides normally takes the form of one or more of the following elements:

- Consultants
- Training
- Equipment

2.3.These elements are widely used by States in the SAM Region as an efficient, effective and neutral tool for implementing their Air Navigation Plans and for the institutional building of Civil Aeronautics Authorities and bodies responsible for providing air navigation services.

2.4.Thanks to different technical cooperation projects in the SAM Region, major progress has been made in the fulfilment of the obligations emanating from Annexes 1, 6 and 8. Likewise, with the help of ICAO technical cooperation projects, the Region is making sizeable investments in infrastructure through the acquisition of air navigation equipment in compliance with the regional air navigation plan and the countries' own national development plans.

2.5.A short description of those elements follows, together with a summary of the investments made by the SAM States in each one.

2.6. Consultants

2.6.1. An ICAO technical cooperation project can provide one or more consultants to live in a country for the purpose of cooperating and assisting the government in any of the various civil aviation fields, performing operational functions on behalf of the government under an operational assistance arrangement (OPAS) or providing formal on-the-job training to a national counterpart. This can be accomplished either through a Special Services Arrangement (SSA) for short-term assignments or sub-contracting a consulting firm. In either case, the tasks involved should be clearly defined, such as, for example, the designing of systems and specifications, feasibility studies, assessment studies, training research, economic studies of air transportation, etc. Any requirement for a short-term consultancy clearly defined by a government can be fulfilled by one or more consultants working under an ICAO technical cooperation project.

2.6.2. ICAO consultants are recruited throughout the world. They are mature people with special skills or expertise acquired through practice and experience, in addition to a good education and professional qualifications in their field of specialisation. What the developing countries need in order to improve their civil aviation infrastructure are the expertise and specialised skills that are normally acquired by working in a well-developed government civil aviation department, civil aviation authority or airline. Other qualities that ICAO consultants must have are patience, adaptability to new circumstances, skill in establishing effective working relations with the personnel of the government being helped and a desire to transmit their skills and expertise to their counterparts.

2.6.3. Many ICAO consultants are employed by their own governments and seconded to ICAO for fixed periods of time. Each consultant works in close cooperation with the designated counterpart to whom they transfer their specialised knowledge during the course of their daily work activities. The objective is always that consultants prepare their national counterparts to replace them when their participation in the project concludes in accordance with the terms of reference of the project document.

2.6.4. In 2001, SAM States invested in 68.3 man-months of assistance through technical cooperation experts in the areas of Aeronautical Communications, Navigation and Surveillance (CNS); Aeronautical Information Services (AIS), Air Traffic Management (ATM), Airworthiness (AIR), Aircraft Operation (OPS), Personnel Licensing (PEL), ATC Radar, Air Transportation, Airport Planning, Training, etc.

2.7. Training

2.7.1. Technical cooperation projects provide for individual fellowships to allow national personnel from the States to attend training courses abroad or at operational institutions that offer appropriate training courses (formal or on-the-job); engage in group training that will enable them to participate in training programmes (mainly study visits) especially organised outside their country of residence for short periods of time normally not exceeding two calendar months and exclusively organised to meet the needs of an individual or group of individuals; and to receive on-the-job training through structured individual or group training in their own countries.

2.7.2. In this connection, SAM States have recognised the importance of investing in human resources through training as a way to attain their development goals. This is the region that makes the most use of the ICAO Technical Cooperation fellowship mechanism.

2.7.3. In 2000, the SAM Region invested over US$ 500,000.00, without considering the cost of air tickets, to allocate a total of 207 fellowships in the areas listed below, which account for 38% of the total fellowships arranged for by ICAO Technical Cooperation throughout the world:

- Air Traffic Control and Search and Rescue Services (57)
- Administration (34)
- Maintenance of Communication Equipment and Navigation Aids (28)
- Aircraft Maintenance and Airworthiness (19)
- Accident Investigation and Prevention (11)
- Teaching Techniques (10)
- Flight Operations Services (10)
- Aeronautical Medicine (8)
- Aeronautical Communication Operations (8)
- Aeronautical Information Services (6)
- Civil Aviation Administration and Legislation (5)
- Aeronautical Meteorology Services (4)
- Airport Engineering and Maintenance (4)
- In-flight Calibration (3)

2.8. Equipment

2.8.1. ICAO projects normally make financial provisions for the procurement of appropriate equipment that is not available in the Administrations for the effective fulfilment of the assigned training functions. In addition to the training equipment, ICAO technical cooperation projects may also provide for the purchase of operational equipment (e.g. radio navigation aids, search and rescue equipment, etc.), when requested by the State.

2.8.2. During the project planning phases that include the provision of equipment, the specific associated elements are also considered. This includes providing for consultants for the preliminary preparation of specifications for the systems and equipment at an early phase and the complete and precise definition of the equipment itself to ensure that sufficient funds are provided to cover the cost of the equipment, spare parts, accessories, installation materials, testing equipment, special tools, training and other services, as well as the cost of transportation and insurance during shipment.

2.8.3. ICAO also operates the Civil Aviation Purchasing Service (CAPS), which is used exclusively for buying equipment, spare parts and services for civil aviation, under a trust fund financing arrangement, applying a fee lower than that used in technical cooperation projects and which varies according to the amount of the purchase.

2.8.4. ***A summary of the purchases made by the SAM Region will be inserted here. This information will be supplied by the TCB.***

2.9. Regional technical cooperation projects in the SAM Region

2.9.1. The changes that the aviation industry is facing as a result of the incorporation of new CNS/ATM technologies and the emergence of economic blocks has led the States to seek greater regional coordination and to pool efforts to establish multinational Air Navigation and Safety Oversight bodies.

2.9.2. In this connection, four (4) Regional Cooperation projects have been established in the Region to assist States in the implementation of the new CNS/ATM systems and to create a regional safety oversight system.

2.9.3. A brief description of these projects is given below.

2.10. UNDP/ICAO RLA/98/003 Project -Transition to the CNS/ATM Systems

2.10.1. This project was established to assist CAR/SAM States in the implementation of the plan for the transition to the CNS/ATM systems in accordance with the CAR/SAM regional plan and the ICAO SARPs.

2.10.2. The Project has organised the work into six different phases as follows:

- Phase I — Development of a methodology to assess present and future traffic flows
- Phases II and III — Assessment of the main traffic flows
- Phase IV — Development of traffic flows and State profiles
- Phase V — Development of implementation scenarios
- Phase VI — Establishment of the details for the implementation of ATM and its facilities and services.

2.10.3. Eighteen traffic flows were assessed in Phases II and III and it was found that the introduction of RNAV routes and RNP values would generate immediate savings in the order of US$ 88 million. Furthermore, in light of the traffic congestion experienced in some of the flows, it will be necessary to implement reduced vertical separation minima (RVSM) in order to increase airspace capacity and allow more aircraft to fly at their preferred flight levels.

2.10.4. Likewise, the necessary information has been developed for preparing "Traffic Flow Profiles" for the development of scenarios, and "State Profiles" for use in the planning and negotiation with service suppliers and users of the transition to CNS/ATM systems, including the selection of technical and operational solutions, such as services and facilities to be used and the timing for their introduction.

2.10.5. The project has become a powerful tool for providing assistance to States and organisations, and activities are being carried out to support the application of ATM elements in the CAR/SAM Regions.

2.10.6. Two (2) meetings/workshops were held in 2000 and 2001under the auspices of Project RLA/98/003 to help States conduct the pre-operational trials and demonstrations of RNAV routes. As a result of those trials, the CAR/SAM RNAV route network is being implemented and in 2002, two meetings/workshops will be held to start implementing RNP 10 and RVSM in the CAR/SAM Regions with project assistance.

2.10.7. The total budget for this project is US$ 2'406,120.00. The following States and international organisations are participating in its financing: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Panama, Paraguay, Peru, United States, Venezuela and COCESNA.

2.11. UNDP/ICAO RLA/98/019 Project -Implementation of the Digital Network - (REDDIG)

2.11.1. Under project RLA/98/019, SAM States are receiving assistance for the acquisition, installation, commissioning and initial and future administration of a digital network, with a view to modernising aeronautical fixed service communications to support the development of the CNS/ATM systems considered in the CAR/SAM FASID document.

2.11.2. This network, known as the South American Digital Network (REDDIG), uses satellite resources with VSAT technology and TDMA access as its main means of transmission. The REDDIG will meet current and future CNS/ATM requirements and permit a seamless transition to a data communication environment where the aeronautical applications of ATM computers will be integrated using the internet services of the Aeronautical Telecommunication Network (ATN).

2.11.3. The original topology of the network consists of 15 nodes that cover all of the SAM States, except for Panama. Because of its characteristics, the REDDIG will be interconnected at different levels with other digital networks, like the MEVA Network of the CAR Region.

2.11.4. The REDDIG is currently being installed and is expected to be fully operational by November 2002. ICAO will be responsible for operating the network for a period of 6 months following its commissioning. After that period, ICAO must transfer the operation of REDDIG to a management mechanism approved by the States participating in the network.

2.11.5. Currently, the States consider that the REDDIG is the solution they expected to all their AFS problems, while maintaining the required service quality and capacity to meet all ATM communication requirements over the next 10 years. .

2.11.6. The RLA/98/019 SAM REDDIG project has a total budget of US$ 5'052,533.00 and the following States are participating in its financing: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, France, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela.

2.12. UNDP/ICAO RLA/00/009 Project - CAR/SAM Regional Augmentation Trial (CSTB)

2.12.1. The primary objective of the RLA/00/009 project is to develop a plan for testing and evaluating the technical and operational benefits of the United States FAA wide area augmentation system in the CAR/SAM Regions, that will contribute to the establishment of the operational model of satellite-based augmentation systems being developed by the GREPECAS CNS/ATM implementation coordination Subgroup.

2.12.1.1. Through a Memorandum of Understanding between the FAA and ICAO, a loan was made for the installation of five (5) reference stations to support the implementation of area augmentation.

2.12.2. The tests will be carried out through the collection of GPS data, making recordings and analyses from the ground and, using flight testing equipment, studying the effect of the ionosphere on the GPS signal in the CAR/SAM Regions, especially around the Ecuadorian zone. During the flight test, Chile, Brazil and Colombia will supply the airplane to carry out the trials. This ultimate goal of this project will be the initial determination of an SBAS configuration for the CAR/SAM Region.

2.12.3. The project has a duration of four years and a budget of US$ 188'936.00. The following States and International Organisations are involved in its financing: Argentina, Bolivia, Colombia, Ecuador, Panama, Peru, Venezuela and COCESNA.

2.13. RLA/99/901 Project - Regional safety oversight cooperation system

2.13.1. This project was established on the basis of a Memorandum of Understanding between LACAC and ICAO and its related regulations, signed on 1 October, 1988, aimed at the establishment and operation of a regional safety oversight system in the Americas, with the technical, logistic and administrative support it may require, pursuant to the safety provisions of the Convention on International Civil Aviation and its Annexes.

2.13.2. This project started its activities in March 2002. For the first year, it planned to review the Latin American regulations (LARs) developed by the RLA/95/003 project "Maintenance of Aircraft Airworthiness and Safety" and to develop an implementation strategy. Furthermore, as a means of building up experience on institutional matters, inspections and certifications of Aircraft Maintenance Organisations (AMOs) using multinational teams, and the possibility of establishing a multinational system for the approval of major repairs and modifications to aircraft will be planned for 2003.

2.13.3. The RLA/99/901 project has a budget of US$ 2'250,000.00 and the following States are participating in its financing: Argentina, Bolivia, Brazil, Chile, Cuba, Ecuador, Panama, Paraguay and Peru. In addition, Airbus Industries participates as observer.

2.13.4. Participation in the System is open to LACAC member States and other North American, Central American, South American and Caribbean States that wish to join, through their respective authorities, as well as to government and/or private institutions interested in safety that express their willingness to join as special observers and are accepted in the System.

2.14. **Suggested action**

2.14.1. The meeting is invited to:

a) take note of the information presented in this working paper regarding the advantages offered by ICAO technical cooperation projects as a powerful tool for development, implementation of air navigation plans, institutional building and regional integration.

b) take any other action the meeting may wish to consider.

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