International Civil Aviation Organization
Project RLA/03/902 – "*Transition to GNSS in the CAR/SAM Regions – SACCSA"*
Tenth Meeting of the Coordination Committee (RCC/10)
Bogota, Colombia, 9 to 13 February 2015

Agenda Item 2: Report on closure of activities of Regional Project RLA/03/902 and Work Packages

WORK CARRIED OUT BY ENAIRE AND ITS SBAS VISION

(Presented by ENAIRE)

SUMMARY

This working paper presents a summary of the activities performed by ENAIRE under Project RLA/03/902 SACCSA and its vision of the future of this Project and the SBAS systems.

1. BACKGROUND

First of all, it should be noted that ENAIRE is the former AENA, with the same air navigation competencies. The denomination AENA S.A. corresponds to the company that owns and operates the airports.

This working paper will show the activities carried out during the different phases of SACCSA by ENAIRE, acting as technical coordinator until May 2014, when the transfer meeting was held, as well as its contributions. Likewise, it will discuss the general vision of SBAS systems, their role in the CAR/SAM Regions, and what is Europe currently doing in this field.

2. WORK OF ENAIRE AS TECHNICAL COORDINATOR

ENAIRE has played a high-level role since the beginning of Project RLA/03/902 – SACCSA, which started with the EDISA Project of the European Union. Based on the results and conclusions of that project, the decision was made to launch the Project in its PHASE II and subsequent PHASE III. Under the project management plan, and based on its complexity, the need was seen to have an International Coordinator and a Technical Coordinator, a task that was entrusted to ENAIRE. In this regard, the tasks entrusted were as follows:

- Follow-up technical activities, coordinate with the International Coordinator for proper execution of the Project.
- Coordinate technical activities hired by ICAO.
- Coordinate with SACCSA member States so as to grant them access to the SACCSA website and, if so required, to the staff responsible for the implementation of industrial activities under the Project, and arrange for permits in case they wish to visit or contact such staff.
- Liaison between the contractor and ICAO, informing the latter of any anomalous condition it identifies.
- Supervise the implementation of SACCSA-based services.
- Review and, if applicable, approve the work carried out by the contractor in the various work packages.
- Present the results of the work done or underway at forums, as indicated by ICAO (GREPECAS, CNS/ATM, RCCs, seminars, etc.).
- Held as many follow-up meetings with the contractor as it may deem appropriate for proper development and evolution of the work being done.

These tasks included support to the TCB in seminars, presentations, and working papers, in terms of both their organization and execution, which has meant dedication and significant day-to-day workload for the units involved and the Technical Coordinator, Mr. Luis Andrada Márquez.

3. CONTRIBUTION OF ENAIRE

From the beginning of the project, ENAIRE has been providing decided support, offering significant financial resources in quantitative and qualitative terms (in kind), seconding staff from different units to the Project to support the technical coordinator.

Likewise, work has been carried out to promote SACCSA in an attempt to make it known as a new SBAS system in the CAR/SAM Regions, in addition to those already in existence or being planned.

The attached table contains a summary of direct financial contributions and the value of in kind contributions made by ENAIRE throughout the different phases of the Project, reflecting the strong support and belief in the possibility of implementing an SBAS adapted to the CAR/SAM Regions, as suggested in all the forums where the system has been presented.

The following table contains a summary of contributions made by ENAIRE:

DIRECT ECONOMIC CONTRIBUTIONS		
	USD	
PHASE I	27,237	
PHASE II	464,760	
PHASE III	841,000	
TOTAL	**1'332,997**	
IN KIND CONTRIBUTIONS		
		COST in USD
PHASE I	Coordination of activities	26,200
PHASE II	Coordination of activities and management of the Industrial Consortium, SACCSA II documentation, PTs 1000, 2200, 3100, 8200, 7000, 9200, 9500, 10000	306,498
PHASE III	Coordination of activities and technical coordination	163,444
TOTAL		**496,142**
SUMMARY		
	Direct contributions	In kind contributions
	1'332,997	496,142
TOTAL USD		**1'829,139**

4. PARTICIPATION OF ENAIRE IN SBAS SYSTEMS

ENAIRE was the first European air navigation service provider to bet on SBAS systems. In 1992, it started collaborating with the European Space Agency in the development of a broad area correction demonstrator that would give rise to the EGNOS system. In 1994, it was the first investor in EGNOS at the highest level, which enabled Spain to have one of the Control Centres, a Service Verification Unit, and 5 reference stations. Subsequently, the air navigation providers of France, Italy, Germany, and the United Kingdom joined in.

This has enabled ENAIRE to participate as one of the satellite navigation leaders in Europe in the main forums where a case has been made for SBAS, such as the GNSS Panel (GNSSP), or the interoperability group.

Currently, ENAIRE is member of the European EGNOS operator and provider (ESSP) together with other European air navigation providers, and operates the control centre and the reference stations located in Spain, based on a contract with ESSP, which enables it to recover its investment.

At present, it is in the process of designing VNAV procedures based on EGNOS, among which the one for Santander has been validated for LPV operations, and is designing and validating procedures for each of the airports of the Spanish network, following the European standards applied in the European Commission member States.

5. ENAIRE'S VISION OF THE SACCSA SYSTEM

SBAS systems have been defined and designed to provide precision approach capabilities up to LPV 200, which is equivalent to CAT I. This allows airports lacking CAT I ILS equipment to design precision approach procedures with vertical guidance, which enhances safety significantly when operated in this type of aerodromes.

Because of their nature, SBAS systems are more useful the more complex the terrain or when there is a smaller number of airports equipped with ILS, whether because of terrain issues or because airport traffic does not warrant its installation.

Thus, the optimum scenarios that provide maximum SBAS performance are not Europe or the United States, but rather regions like CAR/SAM, with complicated terrain and airports where ILS implementation is not highly profitable, but due to the social nature of aerodromes, there is a need to ensure the best and safest operation, opening the possibility of increasing the number of operations based on safety-enhancing procedures.

Thus, SACCSA is a system with high potential in the CAR/SAM Regions, since it permits the design of advanced procedures with vertical guidance in many aerodromes that lack ILS or have a very complicated surrounding terrain. Accordingly, it permits increased operating hours, improved safety, and even the re-opening of landing fields that, because of their characteristics, had to be closed or had reduced their operations significantly.

Studies conducted to date have shown that it is possible to implement SACCSA in the CAR/SAM Regions, overcoming ionosphere problems by applying both technical and operational solutions and obtaining more benefits than those derived from systems currently in operation. Since it is a regional system, implementation costs, which at unit level can be very high, are drastically reduced when shared among the States of a region, especially taking into account the benefits derived from reducing reliance on ground infrastructure (very expensive to implement and maintain) and potential increase in the number of precision operations (more rates collected).

Furthermore, the multimodal nature of the system, which can cover all sectors of society, allows the whole society to benefit from SACCSA. Thus, the costs derived from its implementation and operation are amortised by utilization rates and social benefits, resulting in intangible savings that would become expenditures without the system.

ENAIRE considers that SACCSA is an opportunity to include the CAR/SAM Regions in the group of regions with SBAS (North America, Europe, Russia, China, India, Japan, and current developments in Korea), placing them in the forefront worldwide. Furthermore, given the characteristics of the CAR/SAM Regions, they could lead the development of SBAS applications beyond the aeronautical field, mainly in the fields of river navigation, security, transport of dangerous goods, and fleet management. Thus, SACCSA is considered to be a system of the future, from which multiple benefits can be derived for all the States and broad sectors of society.

6. THE MEETING IS INVITED TO:

Take note of the information contained in this working paper.
