INTERNATIONAL CIVIL AVIATION ORGANIZATION

RLA/00/009 PROJECT SECOND COORDINATION MEETING ON GNSS AUGMENTATION TRIALS

(Río de Janeiro, Brazil, 28 to 30 August 2002)

Agenda Item 3: Report on activities carried out to date regarding execution of the project

ANNUAL PROGRAMME REPORT

(Presented by the Secretariat)

Summary

This working paper presents the annual programme report of the activities carried out for the execution of the Regional GNSS augmentation trials during its first year. In addition, the annual programme report presents forms showing the activities of the project, for the evaluation by participant States.

Reference:

- RLA/00/009 Project document.

1. Background

1.1 The annual programme report s an assessment of a particular programme or project during a given year by target groups**,** programme or project management, government and UNDP. It aims to:

(a) Provide a rating and textual assessment of the progress of a programme or project in achieving expected results;

(b) Present stakeholders' insights into issues affecting the implementation of a programme or project and their proposals for addressing those issues;

(c) Serve as an input to any evaluation of the programme or project;

(d) Be a source of inputs to the preparation of the annual and country reviews of the country cooperation framework.

2. Contents and structure

2.1 The annual programme report form is divided into three parts. Part I requests a numerical rating of programme or project relevance and performance, as well as an overall rating of the programme or project.

2.2 Part II asks for a textual assessment of the programme or project, focusing on major achievements, early evidence of success, issues and problems, recommendations and lessons learnt.

2.3 Part III consists of a summary table with two sections: one section reports on resources and expenditures, and the other highlights progress towards achieving expected results. Annexes may be included, as necessary, to provide specific information in support of the rating and assessment indicated.

2.4 The participant States in the project have to numerically qualify during the meeting Part I of the annual programme report, putting the name, date and signature. **Appendix A** to this paper presents the annual programme report of the RLA/00/009 project.

3. Actions suggested

3.1 The meeting is invite to:

a) take note of the annual programme report that is presented in Appendix A;

b) qualify the annual programme report using the form presented in Part I of the annual programme report; and

c) Analyse Parts II and III of the annual programme report.

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APPENDIX A

PROGRAMME OR PROJECT ANNUAL REPORT

Basic Information on the Programme or Project

Number and title of the project:	RLA/00/009–Regional GNSS augmentation test
Designated institution:	ICAO
Project initiation date:	
Originally planned:	July 2001
Effective:	July 2001
Project termination date:	
Originally planned:	June 2004
Effective:	
Total budget (Dollars):	
Initial amount:	US$229,000
Last approved revision:	US$188,936
Period covered by the report:	July 2001 – 30 July 2002

PART I: NUMERIC EVALUATION

Please evaluate pertinence and performance of the programme or project, using the following scale:

1 – Highly satisfactory
2 – Satisfactory
3 – Not satisfactory, with some positive elements
4 – Not satisfactory
X – Does not apply

Please indicate your answers in the column corresponding to your function in the programme or project.

SUBSTANTIVE APPROACH	ICAO	ARG	BOL	BRA	CHI	COL	ECU	EE.UU.	PAN	PER	VEN	COCESNA	AVERAGE
1. How do you evaluate the level of pertinence of the programme or project in relation to the development priorities of the country?	X												
2. How do you evaluate the pertinence of the programme or project in respect to sustainable human development promotion? Please indicate your mark in the concentration sphere of what programme or project should treat.													
a) Eradication of poverty and sustainable means of life	X												
b) Protection and regeneration of the environment	X												
c) Woman in development	X												
d) Promotion of a favourable scope for sustainable human development, including gobernability.	X												
3. ¿In what measure the programme or project is oriented to appropriate beneficiary groups, based on the following considerations?													
a) Gender	X												
b) Socioeconomic factors	X												
c) Geographical location	X												
4. Given the programme or project objectives, support is provided to pertinent institutions?	2												

SUBSTANTIVE APPROACH	ICAO	ARG	BOL	BRA	CHI	COL	ECU	EE.UU.	PAN	PER	VEN	COCESNA	AVERAGE
1. Using the following indicators, evaluate the product contribution to the achievement of the immediate objectives a/: **Indicator #1** Digital network for the fixed aeronautical telecommunications service in operation, on the basis of fifteen nodes installed in predetermined locations. **Indicator # 2** Project participant States will have qualified personnel to analyze the installation of the augmentation systems in support to the navigation systems.	2 2												
2. Evaluate achievement of desired products.	2												
3. Are management mechanisms of the programme or project adequate?	2												
4. Are programme or project resources sufficient (financial, physical and human) in respect to: a) quantity? b) quality?	 2 2												
5. Are programme or project resources being used efficiently to produce aimed results?	2												
6. Is the programme or project effective in function of costs, in comparison with similar programme or projects?	2												

SUBSTANTIVE APPROACH	ICAO	ARG	BOL	BRA	CHI	COL	ECU	EE.UU.	PAN	PER	VEN	COCESNA	AVERAGE
7. Based in the work plan, how would you evaluate the opportunity of the programme or project regarding: a. achievement of initial products and results? b. delivery of supplies?	2 3												
GLOBAL EVALUTION OF THE PROGRAMME OR PROJECT	2												

PART II: DESCRIPTIVE EVALUATION

1. Which are the principal achievements of the programme or project in relation to the expected results during the period being evaluated? If possible, please include an evaluation of possible effects, sustainability, and contribution to capacity development:

   Since the beginning of the implementation of the UNDP/ICAO Project, July 2001, so far, all the Reference Stations have been installed. Additionally, some communication links between TRS and TMS have been implemented. Two of the three foreseen training courses have been imparted. Likewise, the first flight tests were carried out in Argentina, Bolivia, Peru, Chile and Brazil. The tests were mainly oriented to the recollection of data for their analysis. Once the initial tests were carried in Brazil, Argentina, Bolivia, Chile and Peru, important conclusions were obtained

   - Installation of the Reference Stations
   - Installation of some communication links between the TRS and the TMS.
   - Realization of two training courses.
   - Initial flight tests for recollection of data and analysis in Argentina, Bolivia, Brazil, Chile and Peru.
   - Important conclusions as results of the first tests.

2. Which are the questions and principal problems that influence the achievement of the programme or project results?

   - More participation of the FAA during the trial in flight.

   - The timely contribution of the States regarding all their concerned activities (cost-sharing contributions, establishment of the communication circuits between the TRS and the TMS, etc.).

3. How do these questions or problems should be solved? Please provide a detailed explanation of the recommended action or actions. Specify who should be responsible for these actions. Indicate also a provisional timetable and necessary resources.

   In view that the foreseen tests represent a novelty to the participant States, in which they do not have experience, it would be necessary that the FAA personnel participate actively in the rest of the foreseen tests, so that they might reach the expected success.

4. What new happenings could probably affect the achievement of the programme or project results? What do you recommend to be prepared for these happenings?

   As a result of the first tests, it has been observed that in order to make operational procedures tests, which might require a certain vertical precision, it becomes necessary the realization of a ionospheric model. The cost of this study is not foreseen in the project budget, therefore, the tests will be conducted in route and NPA.

5. Which is the opinion of the beneficiary groups regarding the programme or project? Please indicate any significant difference based in gender aspects regarding these opinions.

   According to conclusion 7/9 formulated in the RAAC/7 (Meeting of Civil Aviation Authorities), it becomes necessary to reformulate the project in accordance to the results obtained in the first tests.

6. Up to date, what lessons (positive or negative) can be pointed out from the programme or project experience?

   As a result of the first tests, it has been observed that in order to make operational procedures tests, which might require a certain vertical precision, it becomes necessary the realization of a ionospheric model. The cost of this study is not foreseen in the project budget, therefore, the tests will be conducted in route and NPA.

7. If the programme or project has been subject of evaluation, which is the degree of application of the recommendations formulated by the evaluators?

   The project has not been evaluated.

8. Do you propose any substantive revision of the document in support of the programme of project document? In case the answer is positive, which are these revisions? Please provide explanation.

9. Provide any other information that could support or give clarity to your programme or project evaluation. You may include the annexes that you consider necessary.

For Argentina: Name: Position: Signature:	Date:
For Bolivia: Name: Position: Signature:	Date:
For Brazil: Name: Position: Signature:	Date:

For Chile: Name: Position: Signature:	Date:
For Colombia: Name: Position: Signature::	Date:
For Ecuador: Name: Position: Signature:	Date:
For the United States: Name: Position: Signature:	Date:
For Panamá: Name: Position: Signature:	Date:
For Perú: Name: Position: Signature:	Date:
For Venezuela: Name: Position: Signature:	Date::
For COCESNA: Name: Position: Signature::	Date::
For ICAO: Name: Position: Signature:	Date::

For UNDP
Name:
Position:
Signature: Date:

PART III: Summary chart of the programme or project

Programme or project title and number:		Management dispositions:	
Designed institution:	ICAO	Covered period:	
GLOBAL EVALUATION			

In general, it can be considered that the project in its first year of operation has been satisfactory. The installation of all the Reference Stations was made effectively. Two of the three foreseen training courses were imparted and the first flight tests were carried out in Argentina, Bolivia, Brazil, Chile and Peru. Important conclusions were obtained as result of the tests carried out.

FINANCIAL SUMMARY			
Funds Source	Total budget (Thousand Dollars)	Total estimated expenditure (Thousand Dollars)	Implementation Rate (%)
Participation in funding of expenditures: Governments of: Argentina Bolivia Brasil Chile Colombia Ecuador United States Panama Peru Venezuela COCESNA	188,936	107,981	57%

SUMMARY OF RESULTS			
Programme support objectives or immediate objectives		**Indicators**	**Achievements**
Obj. 1	Develop a test and evaluation plan on the technical and operational benefits of the U.S. FAA WAAS in the Caribbean and South American regions (CAR/SAM), so as to assist in the establishment of the satellite based augmentation systems operational model being developed by the GREPECAS CNS/ATM implementation coordination subgroup.	**Indicator** #1 GREPECAS will count with the necessary information that will allow the establishment of an operational model of a system augmentation, type GNSS (SBAS/ GBAS) in the CAR/SAM.regions. **Indicator #2** Project participant States will have qualified personnel to analyze the installation of the augmentation systems in support to the navigation systems.	According to what has been carried out to-date, there is a lack of information necessary for the establishment of an operational model for an augmentation system, GNSS type in the CAR/SAM Regions. Participant States have been trained through the realization of two of the three foreseen courses. They have acquired the knowledge for the TRS installation. They have achieved familiarization with the initial tests of data recollection in ground and air.

Annual goals	Products achievement	Proposed products goals for next year
Objetive 1 Develop a test and evaluation plan on the technical and operational benefits of the U.S. FAA WAAS in the Caribbean and South American regions (CAR/SAM), so as to assist in the establishment of the satellite bed augmentation systems operational model being developed by the GREPECAS CNS/ATM implementation coordination subgroup.		
1.1. CAR/SAM test bed operational test and evaluation plan developed and approved.	The tests plans elaborated so far and approved by the participant States consisted on the collection of data in ground and air to analyze the influence of these with the ionesphere for en route and NPA operative procedures.	To finish the elaboration of the remaining plans.
1.2 GPS approach procedures for test flight to exercise the WAAS component in each participating State at one airport.	Not yet carried out.	Their realization is expected after the third training course is carried out in February 2003.
1.3 Development and refinement of operational standards and procedures for use and approval of satellite-based navigation systems.	ICAO effective regulations will be used.	ICAO effective regulations will be used.
1.4 Preparation for test and evaluation data collection and analysis in each participating State (Equipment Installation Site Survey and Installation Plan.	All the TRS specified in the project were installed. Some communications links were established between the TRS and the TMS.	It is expected that by the end of July 2003 the augmentation platform will be concluded , so that to enable to carry out the SBAS type tests.
1.5 Regional Flight Test Plan (Phase 1) developed for testing and evaluation of cooperative concepts and architecture fo an integrated satellite navigation system.	The first phase of the tests were developed in Argentina, Bolivia, Brazil, Chile and Peru, using a Chilean flight inspection aircraft.	Flight rehearsal tests for the verification of the SBAS augmentation. For this purpose a Brazilian flight inspection aircraft will be used.
1.6 Completed Regional Flight Test Plan.		It is expected that the flight tests will conclude bye end of January 2004.

Annual goals	Products achievement	Proposed products goals for next year
1.7 Regional Flight Test Report (Phase 3) to include each sub-region test bed airborne segment analysis and reports for the regional tests.		It is expected that the report will be finished for the beginning of the second trimester of 2004.
1.8 State Flight Test Plan developed (Phase 4) for testing and verification of satellite navigation concepts in each participating State.	The first phase of the tests was developed in Argentina, Bolivia, Brazil, Chile and Peru, using a Chilean flight inspection aircraft.	Rehearsal flight tests for the verification of the SBAS augmentation. For this purpose a Brazilian flight inspection aircraft will be used.
1.9 Preparation for testing and evaluation of the performance of the test bed for all phases of flight down to and including CAT I precision approaches. State Flight Test Plan.	In accordance with the first results of the tests carried out to-date, the type of tests that the project will be able to embrace will be for en route and NPA operations. No CAT 1 tests will be carried out.	
1.10 Completed State Flight Test Plan.		It is expected that they will be completed by February 2002.
1.11 State Flight Test Report (Phase 6) completed to include each sub-region test bed airborne segment analysis and reports at the State level.		Its completion is expected by March 2004.
1.12 State Operational Implementation Strategy/Plan (Phase 7). Reduction of the risks and removal of the barriers involved with a future implementation of satellite navigation in the CAR/SAM regions.		This plan will be included in the Project final report.

Annual goals	Products achievement	Proposed products goals for next year
1.13 State/Regional Training Plan Technical and operational experience and training provided to facilitate the implementation of a satellite navigation system.	So far, two training coursed have been carried out: • Installation of a Reference Station (Buenos Aires, Argentina, December 2001). • WAAS Operation, Data Reduction and Analysis (Atlantic City, USA, February 2002).	The last course is foreseen for February 2003.
1.14 State/Regional Cost Benefits Analysis. Provision of data and information for the development of a verifiable cost/benefit analysis.		This analysis will begin in the second trimester of 2004, with a duration of 15 days.
1.15 State/Regional Satellite Navigation Architecture. (Hardware, Software/ Communications) Provision of convincing technical proof of concept to initiate funding to start the implementation of satellite navigation in the CAR/SAM regions.		This will depend entirely on the results of the tests.
1.16 Operational training programmes available for all participants in the test program. (Training support as requested).		

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