



This action is funded by the European Union

ANNEX 7

of the Commission Implementing Decision on the Annual Action Programme 2015
of the DCI Pan-African Programme

Action Document for EGNOS in Africa Support Programme

INFORMATION FOR POTENTIAL GRANT APPLICANTS

WORK PROGRAMME FOR GRANTS

This document constitutes the work programme for grants in the sense of Article 128(1) of the Financial Regulation (Regulation (EU, Euratom) No 966/2012) in the following sections concerning grants awarded directly without a call for proposals: 5.4.1.

1. Title/basic act/ CRIS number	European Geostationary Navigation Overlay Service (EGNOS) in Africa Support Programme CRIS number: DCI/PANAF/038-360 financed under the Development Cooperation Instrument
2. Zone benefiting from the action/location	Pan-African The action shall be carried out at the following location: Africa
3. Programming document	Pan-African Programme Multi-Annual Indicative Programme 2014-2017
4. Sector of concentration/ thematic area	Strategic area 4: Sustainable and inclusive development and growth and continental integration Component 4: infrastructure
5. Amounts concerned	Total estimated cost: EUR 5 000 000 The contribution is for an amount of EUR 4 700 000 from the general budget of the European Union for 2015 This action is co-financed by the Agency for the Safety of Air Navigation in Africa and Madagascar (ASECNA) for an indicative amount of EUR 300 000
6. Aid modality and implementation modalities	Project Modality Direct management- grants direct award and Indirect Management with an EU specialised agency (European Global Navigation Satellite Systems Agency (GSA))
7. DAC code(s)	21010

8. Markers (from CRIS DAC form)	General policy objective	Not targeted	Significant objective	Main objective
	Participation development/good governance	x	<input type="checkbox"/>	<input type="checkbox"/>
	Aid to environment	x	<input type="checkbox"/>	<input type="checkbox"/>
	Gender equality (including Women In Development)	x	<input type="checkbox"/>	<input type="checkbox"/>
	Trade Development	x	<input type="checkbox"/>	<input type="checkbox"/>
	Reproductive, Maternal, New born and child health	x	<input type="checkbox"/>	<input type="checkbox"/>
	RIO Convention markers	Not targeted	Significant objective	Main objective
	Biological diversity	x	<input type="checkbox"/>	<input type="checkbox"/>
	Combat desertification	x	<input type="checkbox"/>	<input type="checkbox"/>
	Climate change mitigation	x	<input type="checkbox"/>	<input type="checkbox"/>
	Climate change adaptation	x	<input type="checkbox"/>	<input type="checkbox"/>
9. Global Public Goods and Challenges (GPGC) thematic flagships	/			

SUMMARY

European Geostationary Navigation Overlay Service (EGNOS) in Africa aims at accompanying the development of Air Transportation in Africa through the modernisation of air navigation systems. The action is in line with the Roadmap adopted at the 4th Africa-European Union (EU) Summit (§47). The corresponding result in the Multi-Annual Indicative Programme 2014-2017 is the improvement in civil aviation safety and efficiency through better navigation system: deployment of satellite navigation systems, certification and exploitation. This should contribute to improved safety, air transport cost reduction and lower carbon emission. This action will contribute to improve flight safety through the extension of the coverage of the European EGNOS satellite-based navigation system to the African continent, building upon the several political declarations and prior actions undertaken to i. a. establish an African project management office, install ground stations, and to proceed with technical studies.

Output 1 consists of the continuation of capacity building support to the Joint Programme Office (JPO), an entity established to coordinate the introduction of EGNOS in Africa and deployment of enhanced EGNOS services on a continental scale. Through this action, JPO developed activities should lead to the extended use of EGNOS in new regional modules in Africa. Technical support would be provided to strengthen JPO in this new continental framework. A Grant Agreement (direct award) between the EU and ASECNA will be signed to handle the contractual aspects.

Output 2 consists of extending to Africa the ongoing studies required for the development of a new version (v3 phase B) of EGNOS in Europe. The upcoming v3 will be particularly relevant for Africa. Combining both continents in the studies will allow economies of scale and avoid duplication of efforts. Such action will be undertaken through a delegation agreement with the European Global Navigation Satellite Systems Agency in charge of the ongoing studies.

1 CONTEXT

1.1 Sector/Country/Regional context/Thematic area

On average over 2005-2015, Africa has experienced impressive growth, with an annual real Gross Domestic Product (GDP) increase of 5.6%. This has not only been driven by favourable commodity prices but also extended to countries that do not possess significant natural resources. This dynamism should continue since Africa's GDP is expected to double by 2030. With 30 million km² of land, making Africa the second biggest continent, the subsoil is a tremendous asset. Demography is also dynamic. Today, 16% of the world's population lives in Africa. Around 2030, 1 person out of 4 will be African and at the end of the 21st century, 4 out of 10.

The aviation industry in Africa is a key contributor to trade and economic development in the continent. The number of passenger flights is predicted to grow significantly in Africa and cargo will become an increasingly important part of African aviation activities. The Secretary General of Airports Council International (ACI) predicted that the aviation industry in Africa will grow by 3.9% per annum through to 2020, compared to a world average of 3.4%, while cargo volumes are expected to grow at the even higher rate of 5.9% per year to 2020.

At the same time, it is recognised that Africa is still lagging behind in terms of international aviation safety standards. The African region accounts for only about 3% of the world traffic movements, but it makes up 19% of world accidents. Whilst the accidents rates of all the other regions have been decreasing or staying at a constant rate, Africa has been increasing steadily over the past 10 years.

Precise satellite navigation has an important potential for socio-economic growth in Africa, not only for the aviation sector, but also for maritime safety along shores, inland waterways navigation, land and cadastre management, oil and mining exploitation and agriculture. The aviation sector is vital for socio-economic development, promotion of international trade, tourism and regional integration. It is particularly important due to the size of the continent and physical barriers such as deserts, tropical forest and mountains and the limited land-based transport network. The expansion of air services is a necessary condition for the development of Africa's economy and export base as well as the expansion of tourism to the region.

1.1.1 Public Policy Assessment and EU Policy Framework

“According to the cost-benefit analysis commissioned by the European Commission, the cumulative undiscounted net benefits of EGNOS extension to Africa on a 30-year timeframe (2011-41) will amount to around EUR 1.7 billion, for the aviation sector alone”¹. This statement shows a strong case for satellite navigation cooperation between the EU and Africa.

In 2009, the EU-Africa High Level Conference on aviation held in Windhoek identified several areas of partnerships between both continents for the sustainable development of air transport. The extension of EGNOS to the African continent has been subject to various political declarations since then. These declarations are the result of a strategic and exclusive political dialogue between the EU and Africa. The following documents paved the way to the current EU-Africa partnership in the area of satellite navigation:

- Communication “Partnership between the European Union and Africa. Connecting Africa and Europe: working towards strengthening transport cooperation”, [COM\(2009\)301 final](#), 24/06/2009;

¹ Extract from capacity4dev website.

- Communication “Action Plan on Global Navigation Satellite Systems (GNSS) Applications”, [COM\(2010\)308 final](#), 14/09/2010;
- [Conclusions of the High-level Meeting on “Space for the African citizens”](#), organised by the Belgian EU presidency on 16 September 2010;
- [Resolutions of the 7th Space Council](#) held in Brussels on 25 November 2010;
- Second Action Plan (2011-2013) for the Implementation of the Africa-EU Strategic Partnership, adopted at the Africa-EU Summit held in Tripoli on 29-30 November 2010.

In 2014, The Roadmap adopted at the 4th Africa-EU Summit states that *We will provide sustainable and adequate financial and human resources for the deployment of satellite navigation infrastructure based on European Geostationary Navigation Overlay Service (EGNOS) and establish governance and financing schemes for the capital and operational expenditures of EGNOS in Africa for the countries concerned. Multimodal inter-connections must be the tangible link that unites our two continents and must reflect the privileged relationship between Africa and the EU.*

The *African Space Policy & Space Strategy* under development currently includes a specific reference to satellite-based navigation and EGNOS.

1.1.2 Stakeholder analysis

The **final beneficiaries** will be the air companies, passengers and African citizens who will benefit from the positive economic and environmental impact of improved safety, air transport cost reduction and lower carbon emission.

The main **institutions** that will benefit from the action are the following:

Joint Programme Office (JPO)

The JPO has been set up by the project “Introduction of GNSS/EGNOS; Capacity Building for Satellite Navigation Services” as part of the 10th EDF intra-ACP programme “Support to the Air Transport Sector and Satellite Service Applications in Africa”. JPO’s mandate is to act as an “implementing instrument” to coordinate the introduction of GNSS/EGNOS in Africa. JPO commenced its operations in December 2013 and finalisation of staffing took place in September 2014. JPO is hosted for the time being by ASECNA in Dakar, Senegal. EU current support to JPO ends in December 2015.

AFCAC

The African Civil Aviation Commission (AFCAC) is a specialised agency of the African Union in the field of civil aviation. AFCAC today comprises 54 African States. AFCAC is the only pan-African institution specialised in civil aviation and therefore represents the interest of the whole continent. It operates through contributions from its Member States, from Western, Northern, Eastern, Central and Southern Africa. As a specialised agency of the AU, AFCAC is at the crossroads of the various regional initiatives and focus on long-term goals for Africa. AFCAC could become a continent-wide interlocutor for civil aviation GNSS.

ASECNA

The Agency for the Safety of Air Navigation in Africa and Madagascar (ASECNA) is an international public institution involving 18 Member States², governed by the Dakar

² Bénin, Burkina Faso, Cameroun, Centrafrique, Comores, Congo, Côte d’Ivoire, France, Gabon, Guinée-Bissau, Guinée-Equatoriale, Madagascar, Mali, Mauritanie, Niger, Sénégal, Tchad, Togo.

Convention with a legal status and financial autonomy. ASECNA is a unique model of cooperative management of airspace covering an area of 16.1 million km², 1.5 times the size of Europe. This airspace is divided into six Flight Information Regions (FIR) defined by the Organization of International Civil Aviation Organization (ICAO). ASECNA's main mission is to improve air navigation safety. Its main activity is the provision of air navigation services to airspace users in its area of responsibility. It also includes engineering, procurement and training services.

ASECNA has received the mandate from its Member States to introduce EGNOS in its area of responsibility, and in 2014 the EU Council has adopted a Decision authorising the opening of negotiations with ASECNA laying down the terms and conditions for the provision of Satellite-Based Augmentation System (SBAS) in Africa, based on EGNOS.

ACAC

The Arab Civil Aviation Commission (ACAC) is a regional organisation for coordination and cooperation among Arab countries and with other parts of the world in the field of civil aviation. ACAC coordinates national civil aviation policies including regulations, training and research of their Member States. Currently ACAC is composed of 20 member countries, including North Africa.

ACAC has made significant GNSS achievements over the last years. Projects such as Euro-Med GNSS 1 & 2 laid the ground for the extension of EGNOS services in the north of Africa. While several Ranging and Integrity Monitoring Stations (RIMS) have already been funded with European Neighbourhood Instrument (ENI) funds, the region was not able to make strategic decisions in terms of finalisation of its EGNOS infrastructure. But a key milestone has been reached recently as the ACAC Board of Directors agreed to give ACAC a GNSS negotiating mandate with the EU on behalf of its Members States. ACAC's roadmap gives priority to the EGNOS coverage using v2 technology while EGNOS v3 is identified as a medium term priority.

AUC

The African Union Commission (AUC) is the main executive organ of the African Union. The role expected from AUC as a counterpart of the EU is a political oversight of the programme providing appropriate guidelines when needed. The institution indeed will be able to provide strategic recommendations for the development of the implementation of Satellite-Based Augmentation System services in Africa and interact with key organisations on the African continent.

European institutions

The Commission has the institutional and technical leadership over GNSS related matters. The European GNSS Agency (GSA) is the specialised agency of the EU in charge of the management of European satellite navigation programmes that include EGNOS and Galileo. The European Space Agency (ESA) is the intergovernmental organisation acting as design agent for the EGNOS and Galileo Projects. The European Satellite Services Provider (ESSP) is contracted by the European Commission to be the EGNOS system operator and service provider. Eurocontrol is the European Organisation for the Safety of Air Navigation.

1.1.3 Priority areas for support/problem analysis

The international civil aviation community agrees on the limits of the current air navigation system to cope with the current and expected air traffic growth in terms of safety and efficiency. Several studies concluded that ICAO's new Communication Navigation

Surveillance/Air Traffic Management (CNS/ATM) system as well as the Performance-Based Navigation (PBN) concept are the only efficient and available tool capable of eradicating the shortcomings and deficiencies affecting air navigation services. This statement is even more valid for Africa as the continent is currently experiencing difficulties in implementing even classical CNS requirements. AFCAC has highlighted the limitations of conventional CNS aids throughout the continent, where their availability and reliability are poor. Installation and maintenance of these aids is difficult in large parts of Africa due to their remote locations. The only reliable, internationally recognised way of reducing the reliance on such traditional, ground-based navigation aids is to opt for satellite-based navigation solutions utilising existing GNSS technology.

EGNOS can provide a response to the needs of Africa in terms of increased safety and reliability and long-term economic gains. EGNOS extension to Africa must be based on a strong technical capacity on the continent. The JPO has been designed to provide that capacity. JPO is currently operating under a well-defined framework (Satellite navigation services for African region - SAFIR project). JPO has an important role to play as a pan-African “implementing instrument” to coordinate GNSS/EGNOS introduction in Africa. As JPO is the only African team with an overall knowledge of GNSS and the European programme, it should be in a position to provide support vis-à-vis various regional modules in Africa. Its concrete role and interface with other organisations such as ASECNA, AFCAC, ACAC is still to be consolidated. It should now gain in autonomy to support the development of EGNOS in Africa. Its legal and institutional framework also needs to evolve in the future.

JPO operating modalities (i.e. administrative issues) and its operating costs require particular attention to build a long-term and sustainable contribution to EGNOS in Africa. ASECNA is currently offering a substantial in-kind contribution to JPO operations: premises, administrative, accounting, HR hosting. Besides ASECNA provides an operational anchor to JPO through specific work requests such as studies (i.e. system engineering studies, cost benefit analysis, legal advices, value-chain assessments).

JPO has benefited substantially from training and capacity building activities over the last two years through Training EGNOS GNSS in Africa (TREGA) project. JPO staff members are well qualified (recruitment process combined to TREGA training) and cover altogether a wide range of technical issues required to work on EGNOS Africa. However, JPO needs further support in order to improve its managerial and organisational capacities.

The EGNOS infrastructure in its current v2 version will allow the provision of a service to users up to 2020-25 but, due to the decision of the EU to adapt the system to the evolution of GPS, the need to take into account the arrival of the Galileo constellation, the study of the next generation of EGNOS in Europe, known as v3, is already going on. The v3 will enable introduction of a double liaison from the Geostationary satellites to the users terminal that may drastically improve the performances on the whole of Africa and in particular in sub-Saharan countries as the ionosphere effect is the main negative contribution to the performances. In short, the improvement of the performances from v2 to v3 will be much higher for Africa than for Europe.

ASECNA has launched technical studies for v2 implementation. The interest of ASECNA in implementing as a first step a short term system based on v2 is motivated by the need to be involved rapidly in the development and operation of the system enabling the provision of early EGNOS-based services in its area of responsibility. The initiative may however not be maximised in terms of coverage and performances, and will therefore be followed by a second

step with the transition towards a system based on v3 development and operation to enable the provision of full EGNOS-based services.

It is therefore recommended that the v3 studies be extended to cover both the European and African Regions. The preliminary architectural design of the EGNOS v3 for the provision of services on the European territory is now being finalised by the European Space Agency (ESA), under the responsibility of the GSA. The activities towards its full deployment will start in the course of 2016. Several options are being considered for extending the use of EGNOS v3 to the African continent with the utilisation of a common space segment and the deployment of ground stations (RIMS) in Africa, which would contribute as well to the coverage of southern Europe and the Mediterranean basin, thereby reducing the cost for the coverage of the EU.

2 RISKS AND ASSUMPTIONS

Risks	Risk level (H/M/L)	Mitigating measures
Lack of consensus within African Member States to agree and implement regional strategies	M	Discussions within SAFIR Steering Committee provide an opportunity to discuss further support to Africa during the remaining months of 2015. Latest Steering Committee held in December 2014 showed encouraging feedback.
Delays in the availability of v3 technology that could make study results in Africa obsolete	M	Linking up Africa to the European flow would limit the risk of delays.
Lack of support to the adoption of EGNOS from final users	L	Sensitisation activities among the various modules in Africa (ACAC, ASECNA, East Africa, South Africa).
International Financial Institutions not interested in supporting ASECNA phase C/D v2	M	Visibility about current negotiation between the EU and ASECNA can give a positive signal to other partners.
Assumptions		
<p>An EU decision to consider Africa in EGNOS v3 development phase takes place by the time the delegation agreement with GSA is signed; the development of the infrastructure is conditional to the set-up of the relevant financing scheme and availability of adequate financing resources;</p> <p>Industrial consortium have sound capacities to carry out the studies;</p> <p>African States and Air Navigation Service Providers' interest to work with JPO remain high;</p> <p>Continuity of EGNOS development in Europe is ensured;</p> <p>African Union strategy confirmed regarding adoption of EGNOS in Africa.</p>		

3 LESSONS LEARNT, COMPLEMENTARITY AND CROSS-CUTTING ISSUES

3.1 Lessons learnt

Global Navigation Satellite System (GNSS) cooperation between the EU and Africa materialised so far through regional instruments, namely the European Development Fund (EDF) for ACP countries, the European Neighborhood Instrument (ENI) for Northern African countries, with the European Investment Bank (EIB) and also through the European Research & Development Framework Programme (FP7).

- In the Mediterranean region, the Euromed GNSS Programme aimed at supporting the GNSS service markets in different transport and non-transport domains. Euromed GNSS I ('METIS' project), managed by GSA, ran from 2006 to 2009. Euromed GNSS II ('MEDUSA' project) ran from 2012 to 2014 and included capacity building activities, as well as deployment of Ranging and Integrity Monitoring Stations (RIMS).
- The FP7 'SIRAJ' project (2010-2012) laid out a regional plan and evaluated the cost and benefits of adopting of the technology in the Mediterranean region. The project also targeted ASECNA.
- The FP7 EGNOS Service Extension to South Africa 'ESES' project (2009-2011) aimed at providing the EU and South African authorities with an overall service implementation plan for the initial extension of EGNOS service to Southern Africa (SADC), including a roadmap, an action plan and recommendations.
- 'SAFIR' & 'TREGA' (2012–2015) projects provided technical assistance, capacity building and provision of test equipment for the development of GNSS/EGNOS services in Africa, including the establishment of an African Joint Programme Office in Dakar, Senegal.
- 'SUCCESS' is a project providing expert support the Commission in international activities related to satellite navigation, including EGNOS in Africa, and encompasses a whole range of technical, operational and financial engineering activities.

These projects laid the ground for the extension of EGNOS services in Africa, supporting recommendations from the International Civil Aviation Organization (ICAO) to adopt Satellite Based Augmentation Systems (SBAS) in Africa. Beyond the benefits related to air navigation (safety, cost and environment benefits), other applications can be considered as beneficial for the African continent, such as maritime transport, energy resources, civil engineering, agriculture, fisheries and land management.

The main lesson learnt from past experience is that technical activities need to be combined with a well-defined political agenda. Continuity of the support provided also seems key. RIMs were funded as part of bilateral cooperation agreements and pilot test were conducted in Morocco and Tunisia but the absence of a consolidated regional approach hindered the achievement of significant results. Also, while an entity similar to JPO was set up in the Mediterranean region (mainly with awareness and dissemination objectives), the Galileo Euro Med Cooperation Office (GEMCO), its activities were short lived and did not lead to a permanent structure capable of playing a key contribution.

3.2 Complementarity, synergy and donor coordination

On the European side, this action is closely related to the European Strategy for EGNOS v2 and v3 technology, in particular through GSA and ESA.

The action should ensure coordination with the relevant activities on satellite navigation managed by the Commission and the GSA. Where appropriate, the Commission will facilitate this coordination, notably through the SUCCESS project.

It will also coordinate with the work undertaken in the framework of the ENI, notably the activities funded under the EuroMed GNSS II and their future follow-up, relevant projects funded under the H2020 programme, with the activities stemming from the international agreement with ASECNA that is currently being negotiated, as well as the dialogue on EGNOS with the Republic of South Africa.

The action should ensure coordination with the work of ICAO and AFCAC on satellite-based navigation (e.g. in the context of the African Planning and Implementation Regional Group).

3.3 Cross-cutting issues

Poverty reduction: better connectivity on the African continent (regional airports) should develop markets in new areas and increase economic opportunities. As the adoption of EGNOS in Africa is so far implemented through regional modules, the least developed countries from ASECNA would benefit from a technology leap to develop their transport connectivity. EGNOS based applications in the area of agriculture represent also significant potential for the continent.

Environmental aspects: by adopting more direct routes, local and international flights in Africa would become more environmental friendly.

Gender equality: development of EGNOS in Africa is an opportunity to guarantee gender equality in this specific sector. This has been taken into consideration within the JPO team which has a good gender balance.

4 DESCRIPTION OF THE ACTION

4.1 Objectives/results

The overall objective is to improve flight safety in Africa.

The specific objective is to improve flight safety at lesser cost in Africa through the adoption of a long-term strategy based on the use of Satellite-Based Augmentation System Technology.

The outputs of the action are (1) the JPO is operational and delivers coordinated support to African modules regarding the adoption of EGNOS in Africa; (2) studies for the development phase of EGNOS v3 in Africa are carried out and specific needs are identified.

4.2 Main activities

Output 1 (JPO)

The following activities are planned for the JPO over the 2016-2017 period:

- JPO acts as the coordination structure in Africa for EGNOS related issues, both as EU counterpart and as coordinator for all African stakeholders;
- JPO develops a road map for 2016-2020. Intervention areas are expected to include: institutional aspects (governance and certification), capacity building and promotion,

system development and deployment, system operation and service provision, aviation application development, non-aviation application development;

- JPO reviews its internal structure: role and attributions within the core team, work relations with focal points in the regional modules (ASECNA, ACAC, East Africa, South Africa);
- JPO finalises its prospects in terms of institutional and legal framework: further analytical work and liaison with stakeholders. A long-term strategy should also address budget modalities through appropriate hosting and potentially commercial activities to generate in-house resources (i.e. paid assignments for services to public or private institutions);
- JPO provides strategic support to the definition of governance and financing of EGNOS in Africa (regional modules, AFCAC, AUC);
- JPO carries out technical activities to foster EGNOS services adoption, as well as specific studies on behalf of regional modules (i.e. system engineering, cost-benefit analysis, legal advice, value-chain assessment);
- JPO carries out communication and awareness activities among African stakeholders;
- JPO succeeds in expanding EGNOS use to new modules/regions;
- JPO carries out surveys related to applications derived from EGNOS (i.e. agriculture, road sector, rail sector, maritime sector);
- JPO organises capacity building activities for African experts through the organisation of working sessions and for the use of a technical platform for ionosphere studies;
- JPO liaise with GSA and ESA as the design agent or coordinator of design activities for EGNOS Africa initiatives;
- Technical assistance to JPO in the following areas: support in the preparation and animation of working sessions, specific studies for North Africa, expertise in technical areas such as overlay and ionosphere issues (potential direct call down from the International Centre for Theoretical Physics (ICTP)), defining the requirements for a geostationary payload, running simulations, human resource and institutional expertise, project management under EU funds;
- Assess the feasibility to upgrade the TREGA platform, a simulation tool existing to simulate the SBAS performances, from v2 to v3 version.

Output 2 (v3 study)

Output 2 is an EGNOS definition Phase B for v3 studies covering Africa. The study will be under the responsibility of the European GNSS Agency (GSA) and implemented through the European Space Agency, which will contract specialised aerospace industry in coherence with the studies for the coverage of Europe. The activity will produce a Preliminary Architecture Definition for optional modules to cover the African continent, together with a binding proposal from the industry for the detailed design and development ('Phase C/D') of an infrastructure for the provision of EGNOS services in Africa.

4.3 Intervention logic

While EGNOS is currently operational in Europe (v2 version), its future version (v3) is expected to be compatible with evolving GPS system itself. This evolution would also ensure interoperability with other SBAS systems outside Europe and obsolescence of some elements of the current infrastructure (e.g. ionosphere particularly problematic in Africa). The deployment of EGNOS v3 technology is considered as a suitable long-term goal for the African continent. However intermediate actions need to be done (2016-2020) in order to achieve this goal.

The JPO, created two years ago as part of an EDF-funded programme, is located in Dakar in ASECNA premises. It is currently acting both as EU counterpart for EGNOS related issues

and as coordinator for African stakeholders. Experience in MEDA region showed that a lack of coordination and continuity of the efforts towards the adoption of EGNOS is detrimental to the process. Moreover, the African Union does not have a specialised entity capable of handling the JPO mandate that covers mainly the technical follow-up of GNSS issues in Africa. As a result, continuation of the JPO and further evolution is key to the achievement of EGNOS SBAS in Africa. JPO activities have so far benefited the ASECNA module. The ASECNA module stands out in Africa for its achievements, both in terms of institutional set-up, service provision and strategies. ASECNA medium-term ambition is to adopt EGNOS v2 technology. During this action, the JPO should reach out to other regions (modules), hence having more of a continental contribution and ensure better coordination overall.

The intervention logic of the action is finally based on the assumption that a formal decision will be made on the EU side as to the inclusion of Africa into EGNOS v3 development phase. Adoption of EGNOS v3 technology is indeed the most relevant option in Africa, both technically (dual frequency offering compatibility with other system and reducing ionosphere issues) and in terms of value for money (fewer Ranging and Integrity Monitoring Stations (RIMS) required for a continental coverage - between 30 and 40). In Europe, phase B v3 was supposed to end in November 2015. However a complementary 'delta' phase B is expected to be conducted until mid-2016. This extension provides a great opportunity to open the scope of the studies to Africa. In order to carry out the studies for the extension of the EGNOS V3 version to the African continent 2M EUR are foreseen in the present financing.

5 IMPLEMENTATION

5.1 Financing agreement

In order to implement this action, it is not foreseen to conclude a financing agreement with the partner country, referred to in Article 184(2)(b) of Regulation (EU, Euratom) No 966/2012.

5.2 Indicative implementation period

The indicative operational implementation period of this action, during which the activities described in section 4.2 will be carried out and the corresponding contracts and agreements implemented, is 30 months from the date of adoption by the Commission of this Action Document.

Extensions of the implementation period may be agreed by the Commission's authorising officer responsible by amending this decision and the relevant contracts and agreements; such amendments to this decision constitute technical amendments in the sense of point (i) of Article 2(3)(c) of Regulation (EU) No 236/2014.

5.3 Implementation of the budget support component

Not applicable.

5.4 Implementation modalities

The implementation modalities are presented below for each output of the action.

5.4.1 Output 1: Grant - direct award for continuation of support to the JPO (direct management)

(a) Objectives of the grant, fields of intervention, priorities of the year and expected results

In order to support the JPO team and to finance its operations a grant will be provided to ASECNA. The contribution would go toward salaries, technical assistance, operating costs

(missions, maintenance of the technical platform). Part of this financing is aimed at supporting the operational activities that will be carried out by the JPO itself (studies, workshops, awareness campaigns, etc).

The expected results are an autonomous JPO recognised as the African institution in charge of SBAS by the end of the action as well as a broader promotion and coordination of EGNOS related work in Africa.

(b) Justification of a direct grant

Under the responsibility of the Commission's authorising officer responsible, the grant may be awarded without a call for proposals to ASECNA.

Under the responsibility of the Commission's authorising officer responsible, the recourse to an award of a grant without a call for proposals is justified because i) the beneficiary is in a *de facto* monopoly situation (Article 190 (c) RAP); and ii) the action has specific characteristics requiring a particular type of body on account of its technical competence, its high degree of specialisation or its administrative power (Article 190 (f) RAP).

The following elements substantiate this position:

- ASECNA has received a negotiating mandate from its members to negotiate with the Commission the extension of EGNOS to Africa;
- The Commission has received from the Council a negotiating mandate to negotiate with ASECNA the extension of EGNOS to Africa;
- ASECNA, as per its status, is a public organisation of 18 Member States playing a central and leading role in GNSS in Africa;
- ASECNA is currently offering an in-kind contribution towards the operations of the JPO through provision of premises and access to its own administrative and procurement system, and has committed to continue its support for the 2016-2020 period;
- ASECNA has a geographical coverage stretching from West Africa to Central Africa and including Madagascar, offering a wide coverage for EGNOS extension to other African countries.

(c) Essential selection and award criteria

The essential selection criteria are the financial and operational capacity of the applicant.

The essential award criteria are relevance of the proposed action to the objectives of the call; design, effectiveness, feasibility, sustainability and cost-effectiveness of the action.

(d) Maximum rate of co-financing

The maximum possible rate of co-financing for this grant is 90% of the eligible costs of the action.

In accordance with Articles 192 of Regulation (EU, Euratom) No 966/2012, if full funding is essential for the action to be carried out, the maximum possible rate of co-financing may be increased up to 100 %. The essentiality of full funding will be justified by the Commission's authorising officer responsible in the award decision, in respect of the principles of equal treatment and sound financial management.

(e) Indicative trimester to conclude the grant agreement

1st trimester of 2016.

5.4.2 Output 2: Indirect management with an EU specialised regulatory agency

Output 2 of this action may be implemented in indirect management with the European GNSS Agency (GSA) in accordance with Article 58(1)(c) of Regulation (EU, Euratom) No 966/2012. This implementation entails the undertaking of studies for the development phase of EGNOS v3. This implementation is justified because GSA is in charge of the procurement of EGNOS phase B v3 studies for Europe, in line with Regulation (EU) No 1285/2013 on the implementation and exploitation of European satellite navigation system, and subsequent Delegation Agreements between GSA and the Commission. Extending the study to Africa will enable economies of scales, reduce management costs and ensure a time-consistent delivery of input for both continents.

The entrusted entity would carry out the following budget-implementation tasks: sub-delegate the procurement and coordination of a study for the development of EGNOS v3 in Africa to the European Space Agency (ESA).

The delegation agreement between GSA and the Commission may be managed by the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) through cross-sub-delegation. This would foster coherence with the current and planned developments of EGNOS in Europe, and is in line with the respective roles of the Commission and of the GSA as defined in Regulation (EU) No 1285/2013.

5.5 Scope of geographical eligibility for procurement and grants

The geographical eligibility in terms of place of establishment for participating in procurement and grant award procedures and in terms of origin of supplies purchased as established in the basic act and set out in the relevant contractual documents shall apply.

The Commission's authorising officer responsible may extend the geographical eligibility in accordance with Article 9(2)(b) of Regulation (EU) No 236/2014 on the basis of urgency or of unavailability of products and services in the markets of the countries concerned, or in other duly substantiated cases where the eligibility rules would make the realisation of this action impossible or exceedingly difficult.

5.6 Indicative budget

	EU contribution (amount in EUR)	Indicative third party contribution, in currency identified
5.3.1. Output 1 – direct grant	2 700 000	300 000
5.3.2. Output 2 – indirect management with European GNSS Agency (GSA)	2 000 000	
Totals	4 700 000	300 000

5.7 Organisational set-up and responsibilities

A Programme Steering Committee (PSC) including representatives from the European Commission, the AUC and AFCAC will be set-up. It will supervise the consistency of the activities of EGNOS in Africa against the specific objectives of the Joint Africa-EU Strategy. Other relevant bodies (ASECNA, ICAO, ESA, relevant Regional Economic Communities) will also be involved as part of a consultative committee.

Under Component 1, the JPO will act according to its mandate which is to be further determined and will include reporting duties toward members of the programme steering committee. ASECNA will remain contractually responsible for all activities as part of the grant. Under Component 2, the agency will report to the Commission.

5.8 Performance monitoring and reporting

The following indicators have been proposed for this action:

- JPO institutionalised in order to allow the progressive deployment of EGNOS modules in Africa
- Number of EGNOS modules launched in Africa
- Number of Memorandums of Understanding (MoU) signed with strategic countries for the set-up of a EGNOS SBAS network
- Cost sharing mechanism identified and proposed for the modules
- Cost–benefit analysis at module level/country level identified and proposed

The day-to-day technical and financial monitoring of the implementation of this action will be a continuous process and part of the implementing partner's responsibilities. To this aim, the implementing partner shall establish a permanent internal, technical and financial monitoring system for the action and elaborate regular progress reports (not less than annual) and final reports. Every report shall provide an accurate account of implementation of the action, difficulties encountered, changes introduced, as well as the degree of achievement of its results (outputs and direct outcomes) as measured by corresponding indicators, using as reference the logframe matrix. The report shall be laid out in such a way as to allow monitoring of the means envisaged and employed and of the budget details for the action. The final report, narrative and financial, will cover the entire period of the action implementation.

The Commission may undertake additional project monitoring visits both through its own staff and through independent consultants recruited directly by the Commission for independent monitoring reviews (or recruited by the responsible agent contracted by the Commission for implementing such reviews).

5.9 Evaluation

Having regard to the importance of the action, a final evaluation may be carried out for this action or its components via independent consultants contracted by the Commission.

It will be carried out for accountability and learning purposes at various levels (including for policy revision), taking into account in particular the fact that it will inform further support to EGNOS in Africa after the end of the action.

The Commission shall inform the implementing partner at least 3 months in advance of the dates foreseen for the evaluation missions. The implementing partner shall collaborate efficiently and effectively with the evaluation experts, and *inter alia* provide them with all necessary information and documentation, as well as access to the project premises and activities.

The evaluation reports shall be shared with the partner country and other key stakeholders. The implementing partner and the Commission shall analyse the conclusions and recommendations of the evaluations and, where appropriate, in agreement with the partner

country, jointly decide on the follow-up actions to be taken and any adjustments necessary, including, if indicated, the reorientation of the project.

The financing of the evaluation shall be covered by another measure constituting a financing decision.

5.10 Audit

Without prejudice to the obligations applicable to contracts concluded for the implementation of this action, the Commission may, on the basis of a risk assessment, contract independent audits or expenditure verification assignments for one or several contracts or agreements.

The financing of the audit shall be covered by another measure constituting a financing decision.

5.11 Communication and visibility

Communication and visibility of the EU is a legal obligation for all external actions funded by the EU.

This action shall contain communication and visibility measures which shall be based on a specific Communication and Visibility Plan of the Action, to be elaborated at the start of implementation and included in the budget for the grant contract and the delegation agreement.

In terms of legal obligations on communication and visibility, the measures shall be implemented by the Commission, the partner country, contractors, grant beneficiaries and/or entrusted entities. Appropriate contractual obligations shall be included in, respectively, the financing agreement, procurement and grant contracts, and delegation agreements.

The Communication and Visibility Manual for European Union External Action shall be used to establish the Communication and Visibility Plan of the Action and the appropriate contractual obligations.

6 PRE-CONDITIONS

None.

APPENDIX - INDICATIVE LOGFRAME MATRIX

	Intervention logic	Indicators	Baselines	Targets	Sources and means of verification	Assumptions
Overall objective : Impact	Flight safety improved in a scheduled time	Number of EGNOS modules put in place	In 2015 no SBAS navigation system in place in Africa = 0	At least two modules launched by the end of 2017	Air transport reports: ICAO, IATA (International Air Transport Association)	Ministries of Transport in the targeted regions interested in improving flight safety at reasonable cost
Specific objective: Outcome	Appropriation of EGNOS SBAS technology in Africa, long term strategy adopted	JPO institutionalised EGNOS roadmap of regional Air Navigation Service Providers (i.e. ACAC, ASECNA)	Not applicable ACAC & ASECNA roadmap in 2015 focus on v2	Status approved by AU ACAC & ASECNA roadmap in 2017 focus on v3	ANSPs annual reports ICAO reports Country strategies	Continuity of EGNOS development in Europe African Union strategy confirmed regarding adoption of EGNOS in Africa
Outputs	1/ JPO operational and delivers coordinated support to African modules regarding the adoption of EGNOS in Africa EGNOS technology adopted in strategic countries	Detailed action plan / Roadmap of JPO during the period 2015-2020 deliverables in terms of working sessions organised and to regional modules support activities Cost benefit analysis at module level/country level identified and proposed Cost sharing mechanisms identified and proposed MoU signed with strategic countries Assessment of ionosphere schintilligraphy issues carried out	JPO interacts mostly with ASECNA Cost benefit analysis developed at continental level 0	JPO interacts and support all African modules: ASECNA, ACAC, East Africa, Southern Africa Cost benefit analysis developed for 5 key countries (tentatively Ethiopia, Nigeria, South Africa, Mozambique, Tanzania) Studies on scintilligraphy completed positively	Monitoring reports of JPO roadmaps / Report from Technical Assistants / Capacity building activities MoU signed with strategic countries	African States and ANSPs' interest to work with JPO remain high
	2/ Studies for the development phase of EGNOS v3 in Africa: specific needs identified	Information available regarding feasibility and costs of EGNOS v3 in different regions of Africa	EGNOS v3 development focuses on Europe	EGNOS v3 development includes Africa	Under GSA and ESA management	Industrial consortium have sound capacities to carry out the studies