
# Study to assess the impacts related to possible evolutions of EUROSUR - Final Report

Written by ICF

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## Preliminary definitions

This study builds on several concepts and definitions of importance for the reader's understanding of the content and findings of the report. These are:

- **EBCGA:** the European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union, commonly referred to as Frontex, was established by Council Regulation (EC) No 2007/2004 (3). Since taking up its responsibilities on 1 May 2005, it assists Member States with implementing the operational aspects of external border management through joint operations and rapid border interventions, risk analysis, information exchange, relations with third countries and the return of irregular migrants. The EBCGA is tasked to provide the necessary assistance for the development and operation of the EUROSUR.
- **EUROSUR:** The European Border Surveillance System establishes a common framework for the exchange of information and for the cooperation between EU Member States and EBCGA to improve situational awareness and to increase reaction capability at the external borders for detecting, preventing and combating irregular immigration and cross-border crime and contributing to ensuring the protection and saving the lives of migrants. EUROSUR components are presented in full in section 1.3 of this proposal
- **Border Surveillance:** The surveillance of borders between border crossing points and the surveillance of border crossing points outside the fixed opening hours, to prevent persons from circumventing border checks.
- **External EU border**: EU Member States' land borders, including river and lake borders, sea borders and their airports, river ports, seaports and lake ports, provided that they are not internal borders. Member States implementing EUROSUR are EU 26 Member States (i.e. all but the United Kingdom and Ireland) as well as four Schengen Associated Countries (Iceland, Liechtenstein, Norway, Switzerland).
- **Situational awareness**: In the context of border surveillance, it denotes the ability to monitor, detect, identify, track and understand irregular cross-border activities to find reasoned grounds for reaction measures on the basis of combining new information with existing knowledge, and to be better able to reduce the loss of lives of migrants at, along or in the proximity of, the external borders.
- **Reaction capabilities**: The ability to perform actions aimed at countering illegal cross-border activities at, along or in the proximity of, the external borders, including the means and timelines to react adequately.
- **Joint operations:** EBCGA provides technical and operational assistance to Member States and non-EU countries in support of operations that may arise during border surveillance operations. Joint operations take place at three types of border – sea, land and air. Each operation is based on risk analysis and uniquely tailored to the circumstances identified by the Agency in one of its risk analysis products.
- **Irregular migrant:** Non-EU national present on the territory of a Schengen State who does not fulfil, or no longer fulfils, the conditions of entry as set out in the Schengen Borders Code (Regulation 562/2006), or other conditions for entry, stay or residence in an EU State.

The concepts and definitions for the study are presented in full in the glossary of terms in Annex 1 of this study.

# Executive summary

This is the Final Report of a Study which assessed the impacts related to the possible evolution of the European Border Surveillance System (EUROSUR) – the common framework for information exchange and cooperation between Member States and Schengen Associated Countries' (thereafter referred to as Member States[1]) national authorities with a responsibility for border surveillance and the European Border and Coast Guard Agency (EBCGA, ex-Frontex). The Study aimed to support Directorate-General for Migration and Home Affairs of the European Commission (DG HOME) in elaborating and assessing proposals for possible modifications of Regulation 1052/2013[2] and built on the results of DG HOME's evaluation of Regulation 1052/2013 (the 'EUROSUR Regulation).

## Background and context

The Study took place in the context of the drafting of the proposal for a new European Border and Coast Guard Regulation[3] (amending Regulation (EU) 2016/ 1624[4] – the EBCG Regulation and Regulation (EU) No 1052/2013 – the EUROSUR Regulation). This proposed new EBCG Regulation incorporates EUROSUR within it and proposes an extension of the scope of EUROSUR as a necessary element of the functioning of the EBCG. Other legal instruments that form part of the Schengen Acquis, such as the Schengen Border Code, were also considered during the Study.

The Study covered 30 Member States, as well as 19 third countries part of four Regional Networks. It considered the further development of EUROSUR within the eight-year period from 2019, including the next multi-annual financial period from 2021 to 2027. The costs of the possible evolution of EUROSUR were estimated independently of the EU funding instruments available to the Member States and to EBCGA.

## Methodology

The Study relied on cost and benefit models to assess the impact of the possible evolutions of EUROSUR. The inputs into the cost and benefit models were derived from desk research, stakeholder consultations and reasoned assumptions. The Study methodology's strengths reside in its bottom-up approach to the elicitation of the costs of the possible evolution of EUROSUR and the validity tests performed by experts involved in the Study. Its limitations relate to the reach of its findings in that the Study is useful to provide an order of magnitude of the cost implications rather than a line-by-line assessment of the price to implement each of the solutions implied by each of the options considered by the Study. The policy benefits that EUROSUR will contribute to as part of the Integrated Border Management Concept have not been assessed in detail, and were considered outside the scope of the study. Rather, the assessment of benefits focused on operational benefits.

## Options assessed

The Study considered several options, which were eventually all included in the proposed new EBCG regulation. The options below are not alternative but rather build upon each

[1] Member States in the context of Eurosur are EU Member States (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, except the United Kingdom and Ireland; as well as the Schengen Associated Countries (Iceland, Lichtenstein, Norway, Switzerland).

[2] Regulation (EU) No 1052/2013 of the European Parliament and of the Council of 22 October 2013 establishing the European Border Surveillance System (Eurosur), *OJ L 295, 6.11.2013, p. 11–26*

[3] Proposal for a regulation European Parliament and of the Council on the European Border and Coast Guard and repealing Regulation (EU) n° 1052/2013 of the European Parliament and of the Council and Regulation (EU) n° 2016/1624 of the European Parliament and of the Council (COM(2018)0631 – C8-0406/2018 – 2018/0330A(COD))

[4] Regulation (EU) 2016/1624 of the European Parliament and of the Council of 14 September 2016 on the European Border and Coast Guard and amending Regulation (EU) 2016/399 of the European Parliament and of the Council and repealing Regulation (EC) No 863/2007 of the European Parliament and of the Council, Council Regulation (EC) No 2007/2004 and Council Decision 2005/267/EC *OJ L 251, 16.9.2016, p. 1–76*

other -- all costs and benefits, therefore, are cumulative. Each option builds upon the costs and benefits of previous one:

- **Option 0 – The baseline situation** describes the status quo of the operational implementation of EUROSUR in EBCGA and in the Member States as well as the corresponding costs of current operations. It serves as a reference to compare the additional costs and benefits derived from the options related to the possible evolutions of EUROSUR. However, the 2018 EUROSUR evaluation showed that there is still some degree of non-compliance with Regulation 1052/2013 by Member States[5].
- **Option 1 – Baseline plus** describes a situation whereby the EBCGA and the Member States fully comply with and implement the full scope of Regulation 1052/2013. In addition, it proceeds to include Joint Operations Reporting Application (JORA) data in EUROSUR, improves the quality of the data exchange via standardisation of reporting and establish information exchange gateways to support the verification of data. Option 1 will cost an average of € 24 million a year to EBCGA and €56 million a year to Member States (an increase of € 4 million – or € 3 million excluding EBCGA staff costs- and € 12 million respectively when compared to Option 0). Its main benefits reside in the improvement in data quality, flow and speed of reporting, thus resulting in an improved situational awareness at Member States' National Coordination Centres (NCCs) across Europe and improvements in reaction capabilities.
- **Option 1.1 – Improved EUROSUR with the current scope ("Baseline plus") with an "EU confidential communication network**" considers the scope of Option 1 whilst upgrading the EUROSUR Communication Network to EU-Confidential level to allow for the exchange of classified data at 'EU Confidential' level. In comparison to Option 0, Option 1.1 will cost an additional € 22 million a year. The upgrade to the communication network supporting the EUROSUR system to EU-Confidential level will broaden the scope of data shared via EUROSUR (e.g. intelligence data, information related to suspects, as well as certain analytical reports), and improve intra-agency cooperation at Member State level.
- **Option 2 – Compulsory inclusion of Border Crossing Point (BCPs)** builds on Option 1[6] and includes the compulsory and systematic reporting of events emanating from checks at all border crossing points. Compared to Option 0, Option 2 involves additional costs of € 4 million a year for EBCGA (mainly related to communication costs and maintenance) and € 18 million a year for Member States (mainly related to the additional cost of infrastructure and staff costs). The main benefit of this option is it will result much-improved risk analysis and situational awareness thus also improving reaction capabilities across Europe. It will fill an important gap, as data from BCPs is crucial to complement data coming from sea, land, and air borders outside BCPs.
- **Option 3 – Compulsory inclusion of Air Border Surveillance builds** on Option 2 and includes the information from Air Border Surveillance systems. It extends the scope of EUROSUR to report on irregular crossing information into the air space of Member States by aircrafts, remotely piloted aircraft (RPAS). Compared to Option 0, Option 3 involves additional costs of € 10 million a year for EBCGA and €5 million for Member States. Option 3 will further strengthen situational awareness of Member

[5] COM(2018) 632 final - Report from the Commission to the European Parliament and the Council on the evaluation of the European Border Surveillance System (EUROSUR), Available at: https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-eurosur-report-632_en.pdf

[6] Note that the assessment also provides cost estimates including an EU confidential network. As the additional costs and benefits being similar, the report on the cost estimates of the inclusion of an EU confidential network as part of the main options.

States and EBCGA, building a comprehensive understanding of the trends and modus operandi in the use of this growing threat.

Option 4 corresponds to a range of additional sub-options to cover the components of Integrated Border Management as defined in Article 4 of the EBCG Regulation[7]. Options 4.1, 4.2 and 4.3 build on Option 3 but are non-cumulative between one another:

- **Option 4.1 – improved information exchange with third countries** aims, within the framework of the EUROSUR Regulation, to exchange information with neighbouring third countries that have already established a cooperation agreement relating to information exchange on border surveillance either through bilateral relationships with a Member State (proxy) via regional networks (such as Seahorse Networks) or directly with the EBCGA via a working arrangement. The nature and extent of the data exchanged is expected to vary accordingly from one third country to another. A dedicated data model and or data governance arrangements would need to be defined on a third country basis. Some EUROSUR Fusion Services[8] will be available to third countries and events from third countries will be fed into European, national or specific situational pictures[9] once validated. Compared to Option 3, Option 4.1 will involve additional costs (mostly related to the development and implementation of a technical solution for third country information exchange within the context of EUROSUR and corresponding additional EBCGA staff) of € 3 million a year for EBCGA and € 0.5 million for Member States (related to the upgrade of the EUROSUR Fusion operational applications), as well as €16 million for third countries (mostly related to the set-up of EUROSUR physical and communication infrastructure, operational applications and corresponding staff). It will bring value by strengthening the benefits of Option 3 and result in a much-improved interagency cooperation with regional networks and third countries.
- **Option 4.2 – Inclusion of secondary movements** includes data on secondary movements in the data being reported to EUROSUR for risk analysis and situational awareness purposes. Hence, secondary movement data and analyses will feature in the European and National Situational Pictures (ESP and NSP). Compared to Option 3, Option 4.2 will involve additional costs totalling € 1 million for EBCGA a year and about € 2 million for Member States. It will bring value by strengthening the benefits of Option 3 and result in a more complete situational awareness.
- **Option 4.3 – Enhanced coordinated planning and execution of border control operations** will make use of the EUROSUR framework for the coordination of operational planning between Member States and the EBCGA both within and outside the context of Joint Operations, Pilot Projects and Rapid Interventions. This will apply particularly to operational plans concerning border sections with high and critical impact levels. Compared to Option 3, Option 4.3 will involve additional costs of € 7 million a year for EBCGA (mostly related to communication and maintenance costs) and € 5 million a year for Member States (mostly related to additional staff involved in the joint planning and coordination of operations and the associated cost of accommodation and systems maintenance). It will bring value by strengthening the benefits delivered by Option 3 and enhancing the planning and operational coordination capabilities of NCCs across Member States and thus in their reaction capabilities.

[7] In the context of this study the EBCG refers to Regulation (EU) 2016/1624 and the new EBCG Regulation.

[8] EUROSUR Fusion Services, coordinated by the EBCG, supply the NCCs, the Commission and EBCGA with information on the external borders and on the pre-frontier area from a variety of sources and technologies. (Art. 29 of new proposed EBCG Regulation)

[9] According to Art. 28 of the new proposed EBCG Regulation, EBCGA and Member States may establish and maintain specific situational pictures in order to support specific operational activities at the external borders or to share information with third countries. The scope of information is yet to be defined by the implementing acts.

## Findings

The full implementation and possible evolutions of EUROSUR, in addition to the EBCGA's budget (which already includes staff costs), would involve an additional annual €20 million for the Agency for the period of 2020 and 2027. For Member States, the full implementation and possible evolutions of EUROSUR will have budgetary implications of an overall €698 million over the same period.

Furthermore, the study considered an additional yearly amount of €14 to €15 million for 2020 and across the entire period of the next Multi-annual Financial Framework for other instruments to support the development of EUROSUR (both as part of the Copernicus Space Programme and via other instruments to support cooperation with third Countries). In turn, this will deliver the following operational benefits:

- improvement in data quality, flow and speed of reporting of information into EUROSUR;
- improved interagency cooperation through exchange of data across geographies and sectors at EU and Member State level as well as with third countries;
- a thorough situational awareness at Member States' NCCs and across Europe, that goes beyond land and sea borders, to include information from border crossing points, air-border surveillance, and secondary movement;
- enhanced planning and operational coordination between NCCs in different Member States in particular in respect to border sections under significant migration pressure and during times of migratory crises; and,
- improved reaction capabilities of national border management authorities and EBCGA.

# 1 Introduction to the Study

This Final Report of the Study to assess the impacts related to possible evolutions of EUROSUR (the Study) was undertaken by ICF on behalf of Directorate-General for Migration and Home Affairs of the European Commission (DG HOME). It is structured as follows:

- Section 1 presents the purpose and scope of the study;
- Section 2 presents the method of approach of the study, including the strengths and limitations of the method applied;
- Section 3 presents options for the possible evolution of EUROSUR alongside their costs of implementation and expected benefits; and
- Section 4 presents the conclusion for the Study.

The annexes present technical information supporting the findings presented in Section 3.

## 1.1 Study context and objectives

The Study aimed to support Commission services in elaborating and assessing proposals for possible modifications of Regulation 1052/2013. It built on the results of the evaluation of the EUROSUR Regulation previously undertaken by Commission services[10]. In early 2018, the Commission identified several options defining the way forward for the possible development of EUROSUR. These proposals, presented in the Terms of Reference of the Study, were refined by DG HOME in anticipation of this Study[11] and during the Study; a detailed description of which is presented in Section 3.

The Study also took place in the context of the drafting of the proposal for a new Regulation on the European Border and Coast Guard[12] (the EBCG Regulation). The proposal called for an extension of the scope of EUROSUR and incorporated EUROSUR in the proposed EBCG Regulation as a necessary element of the functioning of the European Border and Coast Guard. Against this background, the two main Study tasks[13] were:

- a Cost/Benefit Analysis (CBA) of options on the future of EUROSUR; and
- consultations with industry bodies, the research community and non-government organisations (NGOs).

Some of the Study interim results were used to assess the financial impact of the amendments of EUROSUR in the Commission proposal on the European Border and Coast Guard and, in particular, the corresponding part in the Legislative Financial Statement.

[10] https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-eurosur-report-632_en.pdf & https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-eurosur-evaluation_en.pdf.

[11] On 6th and 7th February 2018, the Commission set up a dedicated workshop to discuss the technological and industrial aspects of EUROSUR with industry representatives, researchers and governmental experts from Member States, EU institutions and Agencies, the results of which are reported in a separate document called "EUROSUR Industry Workshop - Summary Report".

[12] COM(2018) 631 final: Proposal for a Regulation of the European parliament and of the council on the European Border and Coast Guard, repealing Council Joint Action n°98/700/JHA, Regulation (EU) n° 1052/2013 of the European Parliament and of the Council and Regulation (EU) n° 2016/1624 of the European Parliament and of the Council.

[13] The foreseen analysis of the results of an open public consultation as in the ToR did not take place and additional efforts was hence put on the two other tasks of the Study.

## 1.2 Study scope

The scope of the Study is multi-faceted. It covers **Schengen Member States** (all options) and **3rd countries** (Option 4.1 only):

- 26 of the 28 EU Member States[14] and four Schengen Associated Countries[15];
- third countries across four Regional Networks: SEAHORSE Atlantic network[16], SEAHORSE Mediterranean network[17], the Baltic Sea Region Border Control Cooperation network CoastNet[18] and the Black Sea Border Coordination and Information Centre[19];
- third countries in the Western Balkans[20] as well as Moldova and Ukraine[21]; and
- other non-EU countries with whom EBCGA has working arrangements may be included in the scope, but were not included in the central cost estimates[22],[23].

The Study engaged with **three stakeholder types**:

- EU institutions (European Commission - DG HOME), EU Agency (European Border and Coast Guard Agency - later EBCGA);
- national authorities (ministries, agencies and bodies involved in border surveillance); and
- industry representatives.

The Study considered **three main legal frameworks** of relevance to EUROSUR:

- Regulation 1052/2013 establishing the European Border Surveillance System (EUROSUR);
- Regulation 2016/ 1624 on the European Border and Coast Guard; and
- Regulation 2016/399 on a Union Code on the rules governing the movement of persons across borders (Schengen Borders Code).

The Study considered **the further development of EUROSUR** within the eight-year period from 2020, including the next multi-annual financial period from 2021 to 2027.

The Study estimated the costs of the possible evolution of EUROSUR independently of the funding instruments available to EBCGA or to Member States. It is expected that EBCGA and Member States will be able to rely on the following funding instruments:

- the Integrated Border Management Fund (€ 9.3 billion over the period 2021 to 2027)[24];

[14] Except the United Kingdom and The Republic of Ireland.

[15] Iceland, Liechtenstein, Norway and Switzerland.

[16] Mauritania, Morocco, Cape Verde and Senegal.

[17] Algeria, Egypt, Libya and Tunisia.

[18] Russia

[19] These countries are: Ukraine, Turkey, Georgia, Macedonia, and Russia.

[20] These Countries are: Albania; Bosnia Herzegovina; FYROM; Kosovo; Montenegro; Serbia.

[21] These Countries are: Moldova and Ukraine.

[22] These countries are: (Albania), Armenia, Azerbaijan, Belarus, (Bosnia Herzegovina), Canada, (Cape Verde), (Georgia); (Kosovo); Moldova, (Montenegro), Nigeria, (Serbia), (FYROM), (Russia), USA, (Turkey), (Ukraine).

[23] A total of nineteen third countries were included in the cost analysis. These are the nations listed in footnotes 16 to 21. The additional nations listed in footnote 22 (i.e. not between parentheses) were not included as they are not currently in a regional programme with nations currently in the EUROSUR programme, and an assessment of the need to include the nations in EUROSUR.

[24] Proposal for a Regulation of the European Parliament and of the Council establishing, as part of the Integrated Border Management Fund, the instrument for financial support for border management and visa COM(2018) 473 final.

- Copernicus and Galileo (part of a € 16 billion Space Programme over the period 2021 to 2027)[25]; and
- EBCGA budget (€ 1.2 billion and € 11.3 billion allocated to the EU agency supporting Member States in the management and protection of the external border over the periods 2019-2020 and from 2021-2027[26] respectively).

The method for assessing the costs and benefits of the different proposals is presented in Section 2 of this report.

## 1.3 Description of EUROSUR

The evaluation of EUROSUR[27] describes the intervention in the following way: "The EUROSUR Regulation establishes an information exchange and cooperation mechanism, which allows national authorities carrying out border surveillance activities and the Agency to exchange information and to cooperate at tactical, operational and strategic level." The following subsections build on this description of EUROSUR.

### 1.3.1 Objectives of EUROSUR

The general objectives of EUROSUR are to[28]:

- contribute to the management of migration flows by reducing the number of irregular migrants entering the Schengen area undetected;
- protect and save lives at the external borders by diminishing considerably the unacceptable death toll of migrants at sea; and
- increase the internal security of the European Union and of the people residing in the EU by preventing serious crime at the external borders of the Schengen area.

The EUROSUR Regulation's **specific objectives** are to significantly increase the situational awareness and the reaction capability of the Member States' border control authorities and of the Agency, with the aim of preventing the establishment of – or, if not possible, identifying and interrupting any new route or method for – irregular migration and cross-border crime shortly after it has been established.

'Situational awareness' means the ability to monitor, detect, identify, track and understand illegal cross-border activities to find reasoned grounds for reaction measures based on combining new information with existing knowledge, and to be better able to reduce loss of lives of migrants at, along or in the proximity of, the external borders[29]. This can be accomplished by achieving the following operational objectives at national and European level:

- improving interagency cooperation by streamlining structures and interlinking systems in the law enforcement domain;
- using data fusion combined with modern technological capabilities for detecting and tracking cross-border movements, in particular (small) vessels;

[25] Proposal for a Regulation of the European Parliament and of the council establishing the space programme of the Union and the European Union Agency for the Space Programme COM/2018/447.

[26] See Legislative Financial Statement section 1.3.1 of the Proposal for a Regulation of the European Parliament and of the Council on the European Border and Coast Guard and repealing Council Joint Action n°98/700/JHA, Regulation 1052/2013 of the European Parliament and of the Council and Regulation (EU) n° 2016/1624 of the European Parliament and of the Council COM(2018) 631 final

[27] Evaluation of the Regulation 1052/2013 of the European Parliament and of the Council of 22 October 2013 establishing the European Border Surveillance System.

[28] See page 7 of Evaluation of the Regulation 1052/2013 of the European Parliament and of the Council of 22 October 2013 establishing the European Border Surveillance System (Eurosur) SWD(2018) 410 final.

[29] As defined by Article 3b of the Regulation 1052/2013.

- exchanging information across different sectors with other actors in the maritime and air domain, such as transport, customs, fisheries control and defence; and
- improving information exchange with neighbouring third countries.

'Reaction capability' means the ability to perform actions aimed at countering illegal cross-border activities at, along or in the proximity of the external borders, including the means and timelines to react adequately[30]. The following operational objectives should therefore be attained at national and European level:

- exchange of data, information and intelligence in close-to-real time and, whenever needed, in a secure manner, thereby moving from a patrolling-driven to an intelligence-driven approach based on risk analysis;
- effective management of personnel and resources, including sensors and patrols; and,
- effective measurement: evaluating the effect of border surveillance activities, thereby providing a new baseline for risk assessment and re-arrangement of priorities.

#### 1.3.1.1 The EUROSUR Regulation and its scope

The EUROSUR Regulation establishes a common framework for the exchange of information and for the cooperation between Member States and the Agency. The EUROSUR Regulation applies to the surveillance of the external land and sea borders and, if Member States voluntarily decide, to the surveillance of air borders and to checks at border crossing points (BCPs). The surveillance activities of EUROSUR include the monitoring, detection, identification, tracking, prevention and interception of unauthorised border crossings for detecting, preventing and combating illegal immigration and cross-border crime and contributing to ensuring the protection and saving the lives of migrants. However, the EUROSUR Regulation does not apply to any legal or administrative measure taken once the responsible authorities of a Member State have intercepted cross-border criminal activities or unauthorised crossings by persons of the external borders.

#### 1.3.1.2 EUROSUR Components

The EUROSUR framework consists of the following components:

- national coordination centres (NCC) established, operated and maintained by each Member State[31], operating 24/7, coordinating and exchanging information among all national authorities with a responsibility for external border surveillance as well as with the national coordination centres of the other Member States and with the Agency (Article 5 of Regulation 1052/2013);
- national situational pictures (NSP): established and maintained by each NCC and composed of several information layers (Article 9 of Regulation 1052/2013);
- a EUROSUR communication network supporting the information exchange, including both sensitive and EU classified information and hosting a video conferencing service (Article 7 of Regulation 1052/2013);
- a European situational picture (ESP) to provide NCCs with accurate and timely information and analysis (Article 10 of Regulation 1052/2013);
- a common pre-frontier intelligence picture (CPIP) to provide NCCs with accurate and timely information and analysis on the pre-frontier area (Article 11 of Regulation 1052/2013); and

[30] As defined by Article 3c of the Regulation 1052/2013.

[31] See section 1.2 for understanding the geographical scope of application of the EUROSUR Regulation i.e. 26 Member States and four Schengen Associated Countries.

- the common application of surveillance tools, better known as EUROSUR Fusion Services, to supply the Member States and the Agency with surveillance products (Article 12 of Regulation 1052/2013).

#### 1.3.1.3 EUROSUR Border Sections and Impact Levels

Each Member State divided its external land and sea borders into border sections and notified them to the Agency (Article 14 of Regulation 1052/2013). The Agency, based on its risk analysis and in agreement with the Member State concerned, attributed to each identified border section an impact level on border security (Article 15 of Regulation 1052/2013). The Member States are obliged to ensure that the surveillance activities carried out at the external border sections correspond to the attributed impact levels (Article 16 of Regulation 1052/2013).

#### 1.3.1.4 Cooperation with external partners

Article 18 of Regulation 1052/2013 sets out the principles of cooperation of the Agency with third parties, other Union institutions, bodies, offices and agencies, and international organisations, while Article 20 of Regulation 1052/2013 frames the exchange of information with neighbouring third countries, with the NCCs being the contact points for such cooperation."

# 2 Methodology

The Study method followed a bottom-up approach to the elicitation of the costs for the possible evolutions of EUROSUR. Cost estimates were developed via a cost model, the details of which are presented in this section.

First, a taxonomy of costs applicable to the EU and the national levels was set out. The current implementation of EUROSUR at EU and Member State level was then costed (see Option 0). The cost implications for the possible evolutions of EUROSUR (Option 1 to 4.3) were defined alongside the volume of expected changes (e.g. increase in the number of analysts, Border Crossing Points, etc.) triggered by the options. Cost implications were compared to the baseline situation (Option 0) to derive the additional costs of each option of EUROSUR. The results of the costing exercise were then subject to a series of tests.

The elicitation of the benefits of the possible evolutions of EUROSUR followed a similar approach. The benefit taxonomy was established through desk research and expert inputs and informed a benefit model. The implications of the possible evolution of EUROSUR also fed into assumptions for assessing the benefits. Validity tests were mainly performed via expert review and making sure benefits were commensurate to those presented in similar studies.

## 2.1 Cost model

The cost model comprises of cost variables as well as scope and volume variables. Cost variables are structured into one unique taxonomy. The cost taxonomy distinguishes between two main cost categories:

- **One-off costs** representing the investments or capital expenditures necessary to implement EUROSUR. This category further contains two main cost types: "Building and infrastructure" (the physical infrastructure necessary for the functioning of the EUROSUR operations); and "Operating and IT equipment" (representing the elements of the IT systems necessary for EUROSUR to function). Each cost type includes corresponding costs items.
- **Recurring costs** representing the running costs or operating expenditure necessary to organise, manage and use EUROSUR daily. This category further contains three main cost types: "Operational personnel" (staff or staff-related costs, such as training); "Communication and maintenance" (telecommunication expenditure and services necessary to maintain the EUROSUR infrastructure and keep systems up and running); and "Operational applications" (products or services necessary to produce EUROSUR services). Each cost type includes corresponding cost items.[32]

A single monetary value was assigned to each cost item to be representative of the situation in each Member State. When not possible, EU average was inputted for missing Member State data. This enabled the study team to reduce the number of data points and or assumptions and thus simplify the cost model.

Figure 1 provides an overview of the taxonomy used for the Study. Variables other than costs items were used to capture the scope and volume effects of the possible evolution of EUROSUR:

- **Scope variables**: The study captures the current state of the implementation of EUROSUR and depicts its future state in terms of functions supported and/or enabled. The binary assessment of the implementation states serves to identify the cost implications for Member States and/or the Agency. Examples of such variables

[32] The staffing costs falling within the scope of EUROSUR mainly relate to the cost of information exchange, analysis and coordination within and between the NCCs. However, the cost of Command and Control functions in the NCC, and staff costs relating to reaction capabilities at BCPs have not been estimated. Such staffing costs relates to the cost of providing border guards, and are outside the scope of EUROSUR specific implementation as command and control functions would still need to be performed in absence of EUROSUR.

include: "Inclusion of air-border surveillance data"; "NCC open 24/7"; and "BCP data included".

- **Volume variables**: The study also captures the number of staff, physical infrastructures, systems or externally-procured products and services necessary to implement the options.

Based on the cost taxonomy, scope and volume variables and reasoned assumptions, a cost model was developed, the results of which are presented in this report (See Figure 1 overleaf).

The results of the costing exercise went through **a series of tests**:

- the value of cost items was derived from desk research and expert inputs (e.g. from the study team, from EBCGA or national stakeholders);
- elements of the additional costs of the possible evolution of EUROSUR were also compared to the previous study[33];
- validity tests were performed to assess whether some implications were commensurate to the current implementation of EUROSUR (e.g. number of staff, number of BCPs, etc.);
- financial tests assessed whether the overall cost implications are commensurate with the amount of funding currently earmarked by European Institutions regarding the budget of JHA Agencies (e.g. EBCGA) or funding programmes (e.g. ISF-Borders, Copernicus) or current national budgets of specific border forces; and
- ratios of different members of staff for each policy option were compared, to ensure that changes in the number of a specific type of staff member did not lead to unrealistic numbers of other staff members (for example, increasing the number of analysts did not lead to an unrealistically low estimate of support staff for the successful functioning of an NCC).

Adjustments to the cost model took account of the above tests, but also of the need to factor in economies of scale between the different options.

## 2.2 Benefit model

The benefit model comprises of benefit variables and describes the functioning of the possible evolutions of EUROSUR. Operational benefits and their relationships were modelled (see Figure 2) by distinguishing between outputs and outcomes[34].

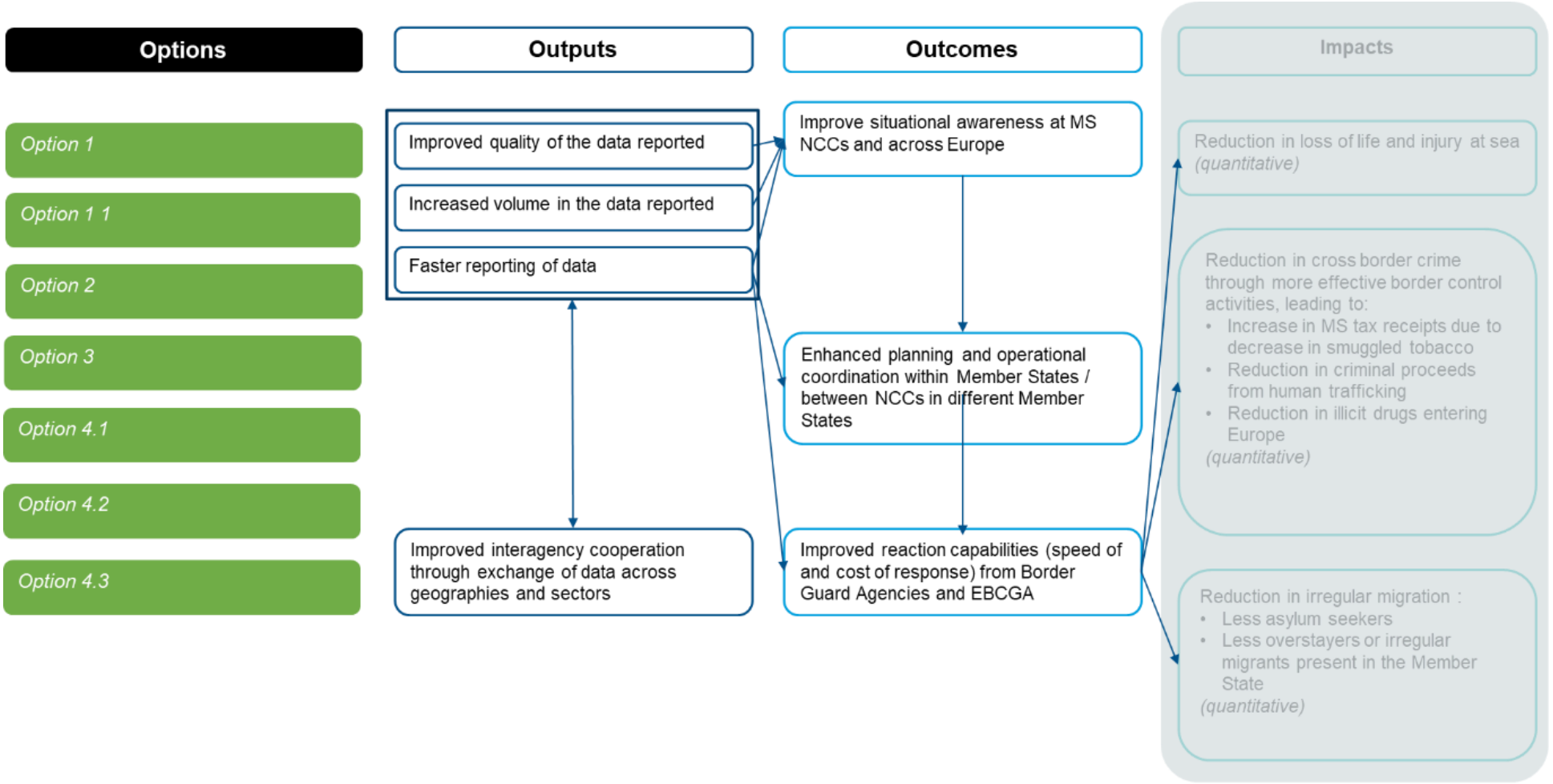
[33] Technical study on the financial impact of the European External Border Surveillance System - EUROSUR – (DG HOME) - 2011

[34] Note that policy related benefits arising from the implementation of EUROSUR are mentioned in the model but not assessed. The rationale being that EUROSUR is a Framework for exchanging information which in and by itself cannot contribute to delivering policy impacts.

*Figure 1. Cost taxonomy used for the Study*

| | |
|---|---|
| **One-off costs (generally categorised as capital costs - CAPEX)** | |
| **Building & infrastructure** | |
| Building construction | Cost related to building construction or extensive renovation |
| Gigabit Ethernet infrastructure | Costs related to implementation or significant improvement to the ethernet infrastructure |
| Building security | Costs related to the implementation of building security measures (e.g., CCTV system, personalised access control system, baggage screening system, etc.) |
| Furniture | Costs related to the acquisition, repair and replacement of furniture (desks, chairs, footrests, armchairs, tables, etc.). |
| **Operating & IT equipment** | |
| IT hardware | One-off upfront costs for purchase, configuration and installation of operator workstations, screens, printing centre, wall mount situation display (LCD screen, beamer system), voice/video communication system, IP phone, firewall system, IDS/IPS, switch, router, rack infrastructure, server hardware costs (DB, communication, geo, web, collaboration, backup, personal data/security and subcentre application servers), data storage system, microwave link, satellite data link, UPS and spare parts, etc. Also includes costs of repair and replacement of IT hardware. |
| IT software | One-off / upfront costs associated with IT software development including network administration SW package, standard PC SW package group license (including OS, Office, Mail, chat, video conference), crypto components, server software costs (DB, communication, geo, web, collaboration, backup, personal data/security and subcentre application servers), RF communication frontends, PABX frontend, etc. |
| **Recurring costs (generally categorised as operating expenditure - OPEX)** | |
| **Operational Personnel** | |
| Staff salary and financial benefits | Average annual salary and other financial benefits; change in person.days that will be occur if Option is implemented |
| Training | Cost of training staff in order to successfully operate system if Option is implemented |
| **Communications & maintenance** | |
| Communications & IT | Total costs for use of telephone, internet, satellite data link, office software all other IT licensing. Estimated increase in use of those in case Option is implemented |
| Maintenance | Maintenance and operational costs, excluding operational personnel, such as cleaning, electricity, gas, building lease costs. Estimated increase of these costs in case Option is implemented. |
| **Operational applications** | |
| Software Applications | Total costs for C2I system application, decision support application, resource information and management application, geodata services collaborative application, etc. estimated increase in case Option is implemented |

*Figure 2. Operational benefit model*



The benefits of each option were assessed by retracing the cause and effect chains of each possible evolution of EUROSUR and changes in the value of benefit indicators. The benefit taxonomy distinguished between three types of operational benefits, each type being further defined by benefit indicators[35]:

- Output-related benefits:
  - Improvement in data quality, flow and speed of reporting:
    - Data quality (re-entry rate).
    - Volume of data.
    - (Latency) of data.
  - Improved interagency cooperation through exchange of data across geographies and sectors at international level, EU level and Member State level:
    - Cooperation agreements across levels of governance by sector.
    - Data or functional services covered across levels of governance.
    - Analytical services exchanged across levels of governance falling within the scope of the agreements.
- Outcome-related benefits:
  - Improved situational awareness at Member States' NCCs and across Europe:
    - Coverage of border sections.
    - Coverage of border crossing points.
    - Coverage of external air border.
    - Coverage of irregular activities across the border.
    - Coverage of border control assets.
  - Enhanced planning and operational coordination between NCCs in different Member States:
    - Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) and EBCGA on a regular basis (within and outside Joint Operations).
    - Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations).
    - Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section.
    - Extent of coordination of daily surveillance activities at multilateral level (within and outside joint operations) by type of border section.
  - Improved reaction capabilities (speed of and cost of response) from Border Guard Agencies and EBCGA:
    - Extent of the synergies derived by jointly developed / coordinated response.
    - Speed of response.

The benefit model also depicts the impact that EUROSUR might be expected to ultimately contribute to as part of the Integrated Border Management Concept, but these were not assessed by the study.

[35] Refer to Annex 3 for detailed definitions and operational benefits and linked assumptions.

The benefit taxonomy distinguished between three types of aspirational / impact benefits:

- **Cost savings to police and border control authorities**. Better surveillance information, planning and coordination are likely to render the operations of police and border control authorities more efficient. It is expected that with the same amount of assets and staff, EU authorities will either be able to do more surveillance and control and or reduce their level of activities by doing such activities jointly.
- **Cost avoidance due to a decrease in irregular migration**. The expected increase in operational efficiency is likely to contribute to, alongside other factors, reducing the flows of irregular migrants to Europe and thereto its associated costs. The type of costs thus avoided include:
  - cost associated with the loss of life and/or injury of irregular migrants by not attempting the crossing of EU external borders;
  - cost of migration-related cross-border crime (smuggling, organised crime, corruption of officials etc.);
  - cost of providing public services for irregular migrants (i.e. health and social care, education, housing, employment, policing);
  - cost linked to the processing of asylum claim applications (i.e. procedural costs, reception costs / detention costs, financial stipend, legal costs); and
  - cost of return (i.e. detention costs, flight and escort related costs, return and reintegration assistance).
- **Cost avoidance by preventing other cross border crime, such as smuggling of illegal drugs and illicit tobacco**. This would lead to a reduction in the volume of illegal drugs for sale in the EU and increase the tax receipts for national Governments as citizens purchase more illicit tobacco products.

Based on the benefit taxonomy and benefit indicators and reasoned assumptions, a benefit model was developed, the results of which are presented in this report.

## 2.3 Sources of data

Data sources include desk research and stakeholder consultations. Regarding the desk research exercise, the following sources were reviewed and compiled:

- national reports from the Member States, including legal mapping, description of activities provided and funding[36];
- consultations with EBCGA, DG HOMEHOME relating to IT systems and data collection on costs and benefits;
- Technical study assessing the financial impact of establishing EUROSUR[37];
- the EUROSUR evaluation[38]
- European Border Fund and Internal Security Fund - Border[39]; and,
- Eurostat (e.g. GDP deflator[40]).

The cost items and other variables entering into the calculations of the costs and operational benefits are presented in Annex 2 and Annex 3.

[36] Not publicly available.

[37] Not publicly available.

[38] Refer to https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-eurosur-evaluation_en.pdf

[39] Not publicly available.

[40] See for instance: https://ec.europa.eu/eurostat/data/database?node_code=teina110

Regarding consultation exercises, Table 1 presents a list of stakeholders consulted during the Study. Member States provided limited input into the Study[41] as Member State officials were assessing and negotiating the proposed EBCG Regulation. Most Member State resources which could be useful for the study were mobilised during the study.

Table 1. *Stakeholders consulted to inform the cost estimates*

| Option | Stakeholder | Data and information collected |
|---|---|---|
| Option 1 | EBCGA, industry (to get a second assessment) | Cost items on information exchange gateways, data quality validation protocols, requirements for merging EUROSUR and JORA datasets; upgrade and/or replacement of communication infrastructure |
| Option 2 | EBCGA, DG HOME | Knowledge of technical requirements of collecting data from BCPs; advise on whether NCC should feed data directly into EUROSUR and/or to import data via EU-LISA's EURODAC system |
| Option 3 | EBCGA | EBCGA: Knowledge of technical requirements of collecting data from different organisations with different IT systems<br><br>EBCGA: Maritime surveillance cooperation between EMSA/EFCA and EBCGA |
| Option 4.1 | EBCGA | EBCGA: Knowledge of setting-up NCCs and establishing third country relationships, technical requirements |
| Option 4.2 | EBCGA | EBCGA: Technical knowledge of collecting additional data from organisations with different IT systems and incorporating into EUROSUR |
| Option 4.3 | EBCGA | Knowledge of the requirements of coordinating planning from Joint Operations. |

## 2.4 Strengths and limitations of the methods

The strengths of the method of approach are as follows:

- The bottom-up up approach to modelling costs offer multiple advantages:
  - The cost model built on the current[42] implementation of EUROSUR at Member State level. Option 0 was estimated which enabled additional costs to be modelled with the understanding of the current state of play in each Member State.
  - A single value for specific cost items was estimated drawing on several data points from Member State specific information to arrive to an EU average.
  - Cost implications were estimated in a similar way across Member States and aggregated and reported at an EU level.
- Using a top-down approach allowed the study team to test the results of the costing exercise, namely:
  - Testing the cost estimates by consulting with officials in EBCGA or industry experts.

[41] Member States were consulted over the summer 2018 in a workshop setting. They were presented with the possible evolutions of EUROSUR and provided feedback orally and in writing to the options and cost implications.

[42] The status of the implementation of EUROSUR was captured by the evaluation of EUROSUR also published online at https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-eurosur-evaluation_en.pdf.

- Testing the results of the cost model with data from procurement exercises and/or legal financial instruments funding part of the EUROSUR deployment.
- Testing the order of magnitude of the implications via non-cost variables (e.g. staffing levels) compared to the current implementation of EUROSUR.

The limitations of the method are as follows:

- The study is useful to provide an order of magnitude of the cost implications rather than a line-by-line assessment of the price to procure the solution. The Study aims to assess the financial costs of EUROSUR for authorities to plan and budget for its implementation in view of its evolutions. It is not a detailed costing exercise for each Member State.
- The future costs of implementation are likely to be influenced by several factors which are difficult to consider in the assessment, namely:
  - The evolution of technology: Although current technologies and their cost implications are known, it is likely that emerging technologies will become affordable by 2027. Such technologies are difficult to identify and to price, either because of a lack of a competitive market or because the commercial technological solutions required may not yet exist.
  - Procurement strategies: The price of implementing the possible evolutions of EUROSUR may vary according to the procurement routes, roadmap, or whether joint procurement exercises are conducted, etc.
  - In the case of the absence of hard evidence (i.e. facts), several reasoned assumptions had to be made to fill information gaps. This might influence the accuracy of the calculations but not the order of magnitude of the cost assessments.
- It was difficult to estimate the potential benefits of the policy options of EUROSUR, as there was limited existing evidence the likely impacts of a framework for information exchange and cooperation between Member States and the Agency in the area of border control. Therefore, the policy benefits that EUROSUR will contribute as part of the Integrated Border Management Concept have not been assessed in detail. Rather, the assessment of benefits focused on operational benefits. For each benefit indicator a baseline value and a maximum value was established. The effect of the options on specific outputs and/or outcomes-related benefits have been subject to expert opinions and reasoned assumptions.

# 3 Proposals for the possible evolutions of EUROSUR

This section describes and assesses the cost and benefits of implementing the proposals for further enhancing EUROSUR. These proposals were derived from the results of the evaluation EUROSUR Regulation[43]. The proposals include three main options i.e. Options 1, 2 & 3 which are cumulative (each option builds on the previous one) a as well as three non-cumulative options (4.1, 4.2 and 4.3) which can be added independently from the other options. Option 0 describes the status quo, i.e. the current state of the implementation of EUROSUR or the baseline situation. Option 1.1 concerns the investment in an EU-Confidential Network supporting the EUROSUR system – it is reported once separately under Option 1.1.

## 3.1 Option 0: Baseline situation

Under Option 0, the EBCGA and the Member States continue to provide EUROSUR "as is". The baseline situation describes[44] the status quo of the operational implementation of EUROSUR in EBCGA and in the Member States as well as corresponding costs of current operations. This means that EUROSUR is not fully implemented as mandated in the Regulation with a subset of Member States collecting some BCP and air border surveillance data. Option 0 builds on the following assumptions:

- The status quo is preserved throughout the defined time horizon of the analysis (up until 2027). This means that the activities currently being undertaken by NCCs and EBCGA will continue to be provided until 2027.
- EUROSUR will continue being implemented within the current scope of Regulation 1052/2013. For example, where a Member State does not provide all activities or services required in the EUROSUR Regulation, they will continue to not provide these activities until 2027 (unless the Member State has specified a date when the activity will begin).
- Similarly, none of the recommendations made in the evaluation of EUROSUR will be implemented.

Overall, **the total estimated costs of Option 0**, that is replacing building security equipment, incurring communication and maintenance costs of existing equipment as well as staff and training costs over the period until 2027, is **€517 million[45]**. Table 2 breaks down the total cost for Option 0.

Table 2. *Total cost of Option 0 (million EUR)*

| **EBCGA** | **Option 0 (million EUR)** |
|---|---|
| Infrastructure | 0.2 |
| Operating and IT equipment | 0[46] |
| Staff cost | 44 |
| Communication & maintenance | 119 |
| **Total EBCGA** | **163** |
| **Member States** | **Option 0 (million EUR)** |
| Infrastructure | 2 |
| Operating and IT equipment | 0 |

[43] Refer to: https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-eurosur-report-632_en.pdf & https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-eurosur-evaluation_en.pdf.

[44] See also section 1.3 for a description of the EUROSUR Regulation.

[45] See Annex 1 of detailed cost calculations

[46] Note that the replacement for depreciated or broken equipment is included in communication and maintenance.

| | |
|---|---|
| Staff cost | 191 |
| Communication & maintenance | 161 |
| **Total Member States** | **354** |
| **Overall Total Costs of Option 0** | **517** |

**The estimated annual total number of staff** related to EUROSUR **at Member State level is 890. The staff** related to EUROSUR oversight, management and development **in EBCGA** (49 staff) is expected to stay the same until 2027. There will be no additional benefits from the Regulation other than those reported in the evaluation of the EUROSUR, which are:

- existence of a legal framework for structured cooperation at EU level;
- regular information exchanged between the Member States; and
- existence of a common European situational picture and related situational awareness.

However, the operational benefits currently delivered by the current EUROSUR regulation are presented in Table 3[47].

Table 3. *State of play of the current operational benefits delivered by the current EUROSUR Regulation*

| Type of operational benefit | Baseline value |
|---|---|
| **Improvement in data quality, flow and speed of reporting** | |
| Data quality (re-entry rate) | Greater than 135% |
| Volume of data – events | 28,000 |
| Volume of data - assets participating in joint operations | 0% |
| Volume of data - analytical reports | 500 |
| Latency of data (events) | 50% reported within 24 hours |
| **Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)** | |
| Number of cooperation agreement by sector | 9 |
| Number of data or functional services covered by EU level inter-agency agreements | 13 |
| Number of analytical services exchanged at EU level falling within the scope of the agreements | A minimum of 300 per year |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)** | |
| Proportion of NCCs exchanging data related to events with neighbouring NCCs on a regular basis | 77% |
| Proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis | 0% |
| Proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis | 7% |

[47] Refer to Annex 3 for detailed benefit calculations and assumptions.

| Type of operational benefit | Baseline value |
|---|---|
| Proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level) | 33% |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)** | |
| Working arrangements between EBCGA and third countries | 19 |
| Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | 0 |
| Bilateral agreements between Member States and third countries (or third countries part of the regional networks) | 26 |
| **Improved situational awareness at Member States' NCCs and across Europe** | |
| Coverage of border sections (by Land / Sea / Air border) (%) | 50% |
| Coverage of border crossing points (%) | Max 66% |
| Coverage of external air border (%) | 0% |
| Coverage of irregular migration phenomena | 3 |
| Coverage of border control assets included in the operational layer (%) | 30% |
| **Enhanced planning and operational coordination between NCCs in different Member States** | |
| Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside Joint Operations) | 0% |
| Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations) | 0% |
| Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section | 0% |
| Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section | 0% |
| **Improved reaction capabilities from Border Guard Agencies and EBCGA** | |
| Number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours | 1934 hours |
| Size of the area covered by joint patrols (Km2) in high risk areas | 784,870 $km^2$ |
| Number of interceptions made following EFS detections | 127 |

## 3.2 Option 1: Improved EUROSUR with the current scope ("Baseline plus")

Under Option 1, the EBCGA and the Member States comply fully with – and implement the full scope of – Regulation 1052/2013. In addition, this Option involves incorporating JORA data into EUROSUR and improves the quality of the data exchanged via standardisation of reporting and establish information exchange gateways and establishes a shared quality control mechanism. This option can be introduced right before the start of the next multi-annual financial period (i.e. 2020).

It builds on the following assumptions on cost implications:

- EBCGA and Member States implement all the provisions as in the Regulation 1052/2013 (e.g. 24/7 service, generating analytical services and products; the provision of an exhaustive situational picture of EU external borders).
- EBCGA and Member States implement all the recommendations made in the EUROSUR evaluation to improve the EUROSUR system such as the implementation of information exchange gateways automating the data exchange between the national and European level as well as assuring the quality of the data exchanged via standardisation of the reporting (both nature of events and procedure)[48].
- The operational and systems costs of including JORA data into EUROSUR are borne by EBCGA.
- Data quality monitoring on the network (e.g. via the definition and enforcement of a new data model) is performed by EBCGA and information is shared with NCCs.
- The deployment of the EBCGA positioning system for border surveillance assets in national and/or in joint operations available to all Member States and Schengen Associated Countries (through EUROSUR Fusion Services).

**Overall, the total estimated cost of Option 1 is €647 million**. In addition to the costs reported under Option 0, Option 1 will involve the development of the technical solution to combine JORA and EUROSUR information, the development of information exchange gateways as well as staff to operate the gateways in EBCGA, and at Member State level staff to provide EUROSUR services as specified in Regulation 1052/2013, and to analyse BCP and air border surveillance data for those Member States which are already doing it as well as EBCGA-related training costs benefiting NCC staff. **The estimated additional cost of Option 1 (on top of Option 0) is €130 million.** Table 4 breaks down the total cost for Option 1.

Table 4. *Total and additional cost of Option 1 (million EUR)*

| EBCGA | Total cost Option 1 (million EUR) | Additional cost compared to Option 0 (million EUR) |
|---|---|---|
| Infrastructure | 0.2 | 0 |
| Operating and IT equipment | 12 | 12 |
| Staff cost | 52 | 8 |
| Communication & maintenance | 130 | 10 |
| **Total EBCGA** | **193** | **30** |

[48] The EUROSUR evaluation and Expert Groups recommended improvements to the EUROSUR system, for example improving the quality of the data exchanged via standardisation of reporting and automation of data exchange (and establishing information exchange gateways to support the verification of data) – see https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-eurosur-report-632_en.pdf. For the EUROSUR Evaluation please refer to https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-eurosur-evaluation_en.pdf

| Member States | Total cost Option 1 (million EUR) | Additional cost compared to Option 0 (million EUR) |
|---|---|---|
| Infrastructure | 17 | 15 |
| Operating and IT equipment | 29 | 29 |
| Staff cost | 241 | 50 |
| Communication & maintenance | 167 | 5 |
| **Total Member States** | **454** | **100** |
| **Overall Total Costs of Option 1** | **647** | **130** |

**Under Option 1, the average annual total number of staff** related to EUROSUR **at Member State level is 1,115 (representing 225 additional FTE compared to Option 0). This is due to apply to all Member States implementing the EUROSUR Regulation. The staff** related to EUROSUR oversight, management and development **in EBCGA** are expected to increase to 61 from 49 FTE under Option 0.

In terms of operational benefits, Option 1 is expected to achieve the operational benefits foreseen in Regulation 1052/2013 – further improvement of the situational awareness Member State and Schengen Associate Countries (SAC), and reaction capabilities at the external EU borders. More specifically, the benefits will fall into the following areas:

- The standardisation of reporting processes, systematic exchange of data as well as the verification of the data exchanged performed via the information exchange gateways is expected to increase data quality. This is expected to eliminate redundant information and contribute to enhancing the quality of data included in EUROSUR. Data quality can also be measured via a proxy indicator (the so called 're-entry rate', or the proportion of incomplete and or incorrect data entries divided by the number of data entered into the EUROSUR system) which is expected to drop as a result of the aforementioned features of option 1.
- The systematic exchange of data will lead to higher volumes of data exchanged as well as with the speed at which the data is reported (data latency). In turn, this can lead to an increase in the volume of the analytical reports generated by this enhanced EUROSUR dataset.
- The timely and higher availability of good quality data and analytical reports is also expected to improve interagency cooperation between neighbouring NCCs via the exchange of data related to events, analytical reports, and relevant assets on a regular basis.

In turn, these direct benefits have the potential to enhance the situational awareness at Member State and Schengen Associate Countries (SAC) level[49], thus potentially contributing to enhanced planning and coordination in the context joint operations, pilot projects and rapid interventions coordinated by EBCGA and increasing reaction capabilities in such a context.

[49] A more complete situational picture for Europe and individual member states will be established if Member States fully apply the EUROSUR Regulation and incorporate the recommendations for the improvement of EUROSUR.

Figure 3 illustrates the key operational benefits delivered through Option 1.

*Figure 3. Illustration of the key operational benefits delivered through Option 1*

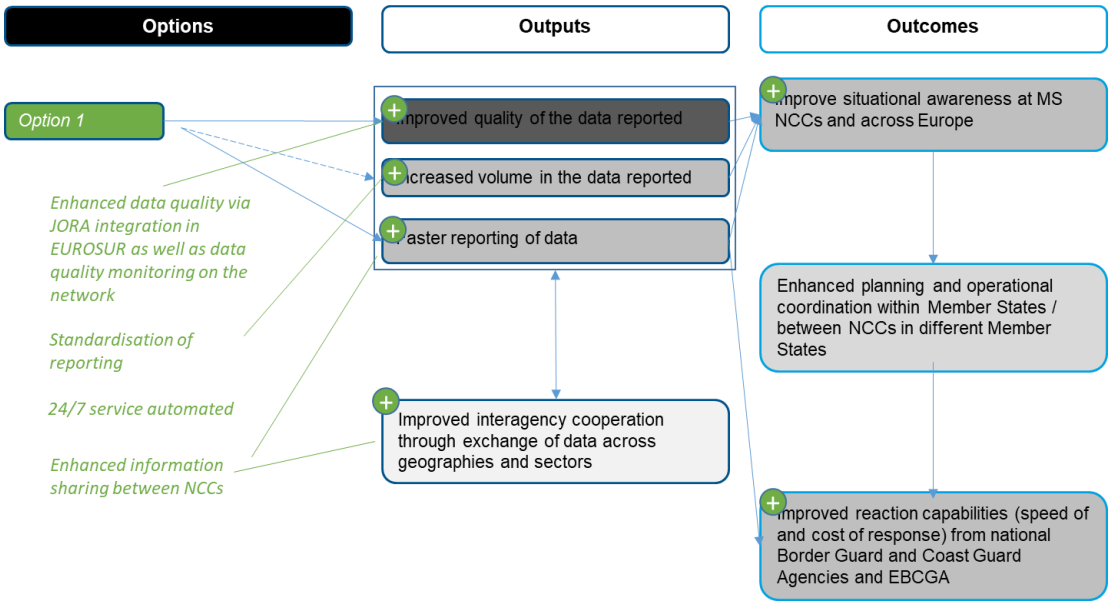



Table 5 summarises the benefits brought by Option 1[50].

Table 5. *Operational benefits delivered by Option 1 compared to the baseline situation*

| Type of operational benefit | Baseline values | Option 1 indicator values |
|---|---|---|
| **Improvement in data quality, flow and speed of reporting** | | |
| Re-entry rate - proportion of incomplete or incorrect data entries divided by the number of data entered the EUROSUR | Greater than 135% | **Less than 100%** |
| Volume of data – annual number of events and products in the analysis layer | 28,000 | **56,000** |
| Volume of data - assets participating in joint operations | 0% | **Limited benefits** |
| Volume of data - analytical reports by MS/SAS | 500 | **1,000** |
| Latency of data - time elapsed between the occurrence of the new information and the entry in the EUROSUR Application | 50% reported within 24 hours | **All events are reported within 24 hours** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)** | | |
| Number of cooperation agreements by sector | 9 | 9 |
| Number of data or functional services covered by EU level inter-agency agreements | 13 | 13 |
| Number of analytical services exchanged at EU level falling within the scope of the agreements | A minimum of 300 per year | A minimum of 300 per year |

[50] Refer to Annex 3 for detailed benefit calculations and assumptions.

| Type of operational benefit | Baseline values | Option 1 indicator values |
|---|---|---|
| **Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)** | | |
| Proportion of NCCs exchanging data related to events with neighbouring NCCs on a regular basis | 77% | **80%** |
| Proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis | 0% | **Limited benefits** |
| Proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis | 7% | **14%** |
| Proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level) | 33% | 33% |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)** | | |
| Working arrangements between EBCGA and third countries | 19 | 19 |
| Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | 0 | 0 |
| Bilateral agreements between Member States and third countries (or third countries part of the regional networks) | 26 | 26 |
| **Improved situational awareness at Member States' NCCs and across Europe** | | |
| Coverage of border sections (by Land / Sea / Air border) (%) | 50% | Max 50% |
| Coverage of border crossing points (%) | Max 66% | Max 66% |
| Coverage of external air border (%) | 0% | **Limited benefits** |
| Coverage of irregular migration phenomena | 3 | **A minimum of 3** |
| Coverage of border control assets included in the operational layer (%) | 30% | 30% |
| **Enhanced planning and operational coordination between NCCs in different Member States** | | |
| Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside Joint Operations) | 0% | **Only deployment plans are** |

| Type of operational benefit | Baseline values | Option 1 indicator values |
|---|---|---|
| | | **shared in cases of joint operations, pilot projects and rapid interventions as per Art. 10.5(a) Regulation 2013/1052** |
| Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations) | 0% | **Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions. as per Art. 10.5(a) of Regulation 2013/1052** |
| Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section | 0% | **No effect** |
| Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section | 0% | **No effect** |
| **Improved reaction capabilities from Border Guard Agencies and EBCGA** | | |
| Number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours | 1934 hours | 1934 hours |
| Size of the area covered by joint patrols (Km2) in high risk areas | 784,870 $km^2$ | 784,870 $km^2$ |
| Number of interceptions made following EFS detections | 127 | 127 |

***Key:*** *indicators marked in green denote an improvement compared to the baseline situation. Indicators marked in amber denote a potential for improvement compared to the baseline situation. Indicators left in* ***black*** *do not signal any change.*

## 3.3 Option 1.1: Improved EUROSUR with the current scope ("Baseline plus") with an "EU-Confidential communication network"

Upgrading the EUROSUR network to EU-Confidential level will allow the exchange of classified data across the network. The cost implications are additional to those of Option 1 and involve:

- upgrading network to EU-Confidential level for each of the NCCs at Member State and Schengen Associated Country level;
- upgrading NCC buildings to support EU-Confidential network;
- replacing IT hardware for staff with new equipment that supports EU-Confidentiality;
- recruiting additional security staff[51] to support EU-Confidentiality at Member State level;
- hiring technical staff to manage encryption, cyber-security as well as data quality within the EUROSUR system in EBCGA; and
- communication network costs.

**Overall, the total estimated cost of Option 1.1 is €680 million (compared to €647 million in Option 1)**. The additional costs of Option 1.1 compared to Option 1 are therefore estimated to be €33 million to upgrade the communication network supporting the EUROSUR system to EU-Confidential. Table 6 breaks down the total cost for Option 1.1.

Table 6. *Total and additional cost of Option 1.1 (EUR millions)*

| EBCGA | Total cost Option 1.1 (million EUR) | Additional cost compared to Option 0 (million EUR) |
|---|---|---|
| Infrastructure | 0.2 | 0 |
| Operating and IT equipment | 12 | 12 |
| Staff cost | 63 | 19 |
| Communication & maintenance | 131 | 11 |
| **Total EBCGA** | **206** | **42** |
| **Member States** | **Total cost Option 1.1 (million EUR)** | **Additional cost compared to Option 0 (million EUR)** |
| Infrastructure | 25 | 23 |
| Operating and IT equipment | 33 | 33 |
| Staff cost | 246 | 55 |
| Communication & maintenance | 170 | 9 |
| **Total Member States** | **474** | **120** |
| **Overall Total Costs of Option 1.1** | **680** | **163** |

**Under Option 1.1. the estimated annual total number of staff** related to EUROSUR **at Member State level is 1,115 (the same number of staff as required in Option 1). The staff** related to EUROSUR oversight, management and development **in EBCGA** is expected to increase (from 49 FTE under option 0 and 61 FTE under Option 1) **to 77**.

[51] For instance, for ensuring that the premises are facility cleared and managing security at such level.

In terms of **operational benefits** in addition to the benefits already brought by Option 1, Option 1.1 is expected to improve interagency cooperation through the exchange of data across geographies and sectors at Member State level related to events and analytical reports. The upgrade of the (EUROSUR) Communication Network to handle confidential information will allow for the increase of entries of certain categories information, such as intelligence data, positioning of certain operational assets, information related to suspects, as well as analytical reports. In turn, this has the potential to lead to a better risk analysis and situational awareness and faster reaction capability; stronger cooperation between Member States, SACs, and EU institutions, including EBCGA and Europol.

Compared to Option 1, the benefits of an EU confidential network are a higher propensity to record sensitive events, disclose the positioning of relevant assets as well as analytical reports, a higher frequency of the exchange of classified information between neighbouring NCCs. In turn, this has the potential to lead to a better situational awareness and faster reaction capability.

Figure 4 illustrates the key operational benefits delivered through Option 1.1.

*Figure 4. Illustration of the key operational benefits delivered through Option 1.1*

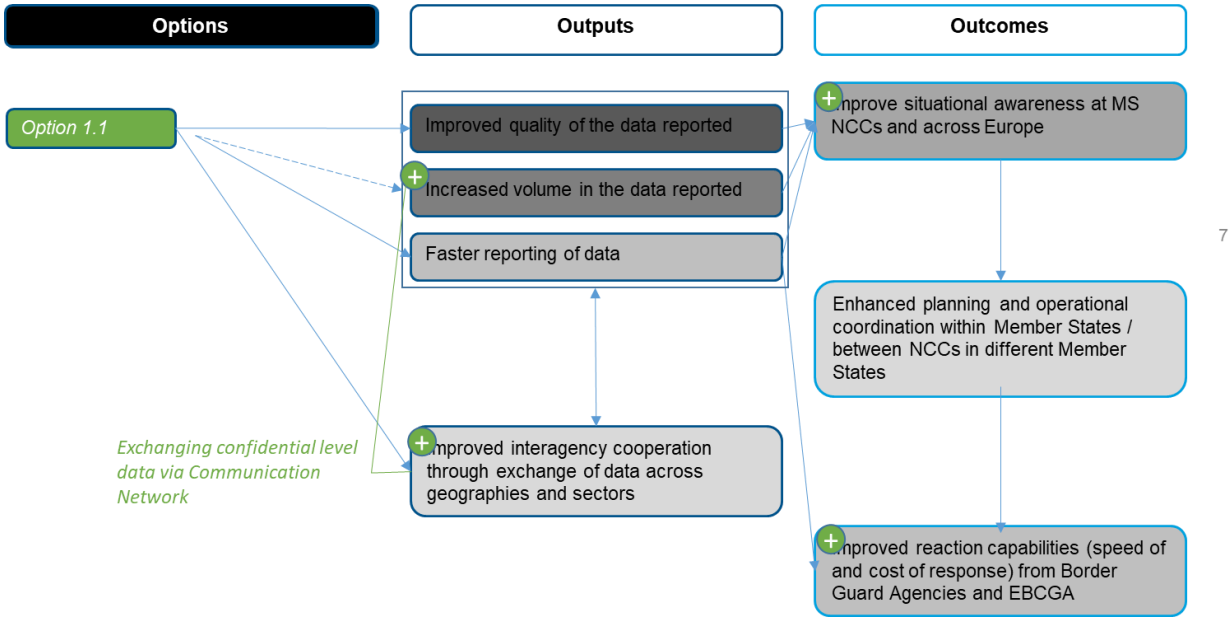



Table 7 summarises the benefits brought by Option 1.1[52].

Table 7. *Operational benefits delivered by Option 1.1 compared to the baseline situation*

| Type of operational benefit | Baseline values | Option 1.1 indicator values |
|---|---|---|
| **Improvement in data quality, flow and speed of reporting** | | |
| Data quality (re-entry rate) | Greater than 135% | **Less than 100%** |
| Volume of data – events | 28,000 | **Greater than 56,000** |
| Volume of data - assets participating in joint operations | 0% | **Moderate benefits** |
| Volume of data - analytical reports | 500 | Greater than 1,000 |

[52] Refer to Annex 3 for detailed benefit calculations and assumptions.

| Type of operational benefit | Baseline values | Option 1.1 indicator values |
|---|---|---|
| Latency of data (events) | 50% reported within 24 hours | **All events are reported within 24 hours** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)** | | |
| Number of cooperation agreement by sector | 9 | 9 |
| Number of data or functional services covered by EU level inter-agency agreements | 13 | 13 |
| Number of analytical services exchanged at EU level falling within the scope of the agreements | A minimum of 300 per year | A minimum of 300 per year |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)** | | |
| Proportion of NCCs exchanging data related to events with neighbouring NCCs on a regular basis | 77% | **100%** |
| Proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis | 0% | **Moderate benefits** |
| Proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis | 7% | **15%** |
| Proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level) | 33% | 33% |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)** | | |
| Working arrangements between EBCGA and third countries | 19 | 19 |
| Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | 0 | 0 |
| Bilateral agreements between Member States and third countries (or third countries part of the regional networks) | 26 | 26 |
| **Improved situational awareness at Member States' NCCs and across Europe** | | |
| Coverage of border sections (by Land / Sea / Air border) (%) | 50% | 50% |
| Coverage of border crossing points (%) | Max 66% | Max 66% |
| Coverage of external air border (%) | 0% | **Limited benefits %** |

| Type of operational benefit | Baseline values | Option 1.1 indicator values |
|---|---|---|
| Coverage of irregular migration phenomena | 3 | **A minimum of 3** |
| Coverage of border control assets included in the operational layer (%) | 30% | 0% |
| **Enhanced planning and operational coordination between NCCs in different Member States** | | |
| Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside Joint Operations) | 0% | **Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions as per Art. 10.5(a) Regulation 2013/1052** |
| Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations) | 0% | **Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions. as per Art. 10.5(a) of Regulation 2013/1052** |
| Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section | 0% | **No effect** |
| Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section | 0% | **No effect** |
| **Improved reaction capabilities from Border Guard Agencies and EBCGA** | | |
| Number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours | 1934 hours | 1934 hours |
| Size of area covered by joint patrols (Km2) in high risk areas | 784,870 $km^2$ | 784,870 $km^2$ |
| Number of interceptions made following EFS detections | 127 | 127 |

***Key:*** *indicators marked in green denote an improvement compared to the baseline situation. Indicators marked in amber denote a potential for improvement compared to the baseline situation. Indicators left in* ***black*** *do not signal any change.*

## 3.4 Option 2: Compulsory inclusion of Border Crossing Points (BCPs)

Option 2 builds on Option 1 and includes the compulsory and systematic reporting of incidents emanating from checks at all border crossing points (BCPs). EUROSUR will hence apply to the surveillance of external air[53], land and sea borders. This option would be introduced one year before the start of the next multi-annual financial period (i.e. 2020). It builds on the following assumptions on cost implications:

- the reception and analysis of information from all BCPs in the 30 Member States and Schengen Associated Countries (including airports) will have to be reported to their NCCs and shared on EUROSUR;
- the reception and analysis of aggregated information from large-scale information systems (Schengen Information System, Visa Information System, Entry, Exist System[54]) on trend data related to migration and events at the BCPs; and
- the increase of analytical capability from EUROSUR Fusion Services to process an increasing volume of data.

**Overall, the total estimated cost of Option 2 is €826 million[55]**. On top of the costs reported under Option 1, Option 2 will involve additional:

- Investments in physical infrastructure: The set-up or enhancement, organisation and operations of NCCs in some of the Member States[56];
- Investments in operating and IT equipment such as: the development of a technical solution for NCCs to access BCP data as part of EUROSUR[57]; the implementation the new software solution in NCC premises; the installation of a communication link with all BCPs and the NCC as well as the development of cooperation and information exchange for the reception and analysis of aggregated data from large-scale information systems.
- Staff costs for analysing BCP data at Member State level and for EUROSUR Fusion Services. Moreover, staff training costs for analysing BCP data will be incurred and provided centrally by the EBCGA.
- Communication and maintenance related costs such as: decision support applications for EUROSUR Fusion Services to provide the information needed to support NCCs and decision making.

**The estimated additional cost of Option 2 (over and above the cost of Option 1) is €179 million**.

Table 8 overleaf breaks down the total cost for Option 2.

[53] In 2019, Member States should be collecting, analysing and sharing information from BCPs at the land and sea borders on a compulsory basis and at the air border on a voluntary basis. This allows EUROSUR to provide an exhaustive situational picture of EU external border, and creates differences between the reporting from different Member States.

[54] Note that the reception and analysis of data from EURODAC is covered under option 4.2.

[55] If an EU confidential communication network is considered these costs will rise to €857 million.

[56] It is assumed that five Member States will have to move the location of their NCCs. The inclusion of all BCP data into the NCC might require a transfer of the NCC from one national authority responsible for border control to another authority. The most relevant entity to host the NCC might may also correspond to the relative importance of volume of data reported from new BCPs to the NCCs; i.e. the national authority with the highest volume of data to report is assumed to be running the NCC (if different from the baseline situation).

[57] e.g. the set-up of communication links as data exchange systems and protocols between existing BCPs and the existing NCCs

Table 8. *Total and additional cost of Option 2 (EUR million)*

| EBCGA | Total cost Option 2 (million EUR) | Additional cost compared to Option 1 (million EUR) |
|---|---|---|
| Infrastructure | 0.2 | 0 |
| Operating and IT equipment | 22 | 10 |
| Staff cost | 60 | 8 |
| Communication & maintenance | 144 | 14 |
| **Total EBCGA** | **226** | **33** |
| **Member States** | **Total cost Option 2 (million EUR)** | **Additional cost compared to Option 1 (million EUR)** |
| Infrastructure | 129 | 121 |
| Operating and IT equipment | 31 | 1 |
| Staff cost | 264 | 20 |
| Communication & maintenance | 176 | 8 |
| **Total Member States** | **600** | **149** |
| **Overall Total Costs of Option 2** | **826** | **179** |
| **Overall Total Costs of Option 2.1** (including an EU confidential communication network) | **857** | |

**Under Option 2, the average annual total number of staff** related to EUROSUR **at Member State level is 1,189** (compared to 1,115 under Option 1)**. The staff** related to EUROSUR oversight, management and development **in EBCGA** is expected to increase to 71. If an EU-Confidential network[58] is considered, the FTE figures would be 1,189 and 87 respectively.

Table 9 summarises the benefits brought by Option 2 compared to the baseline situation[59]. Compared to Option 1, Option 2 will lead to:

- An improved situational awareness at the external borders via the coverage of the majority of BCPs[60]. This will be achieved via:
  - An increase in the volume of the data reported and analytical reports generated, related to the situation and issues linked to all categories of BCPs. This will strengthen the risk analysis capability of EBCGA and of Member States.
  - An improved interagency cooperation at EU level via sectoral agreement (i.e. customs).
- Improved surveillance capabilities and response capabilities as a result of a greater number of EFS data or functional services covered by EU level interagency agreements. Presently, EFS covers 13 areas (e.g. vessel monitoring, detection, etc.), but it is expected that EBCGA will bring in more services, such as BCP analysis and Europol big data services.

[58] i.e. between the NCC and EBCGA nodes.

[59] Refer to Annex 3 for detailed benefit calculations and assumptions.

[60] A more comprehensive situational picture at Member State and EU level will also be achieved via a better quality control of data and systematic reporting of events as supported by Options 1 and 1.1.

- An improved interagency cooperation between Member States , as well as within these countries via the exchange of information coming from BCPs as well as corresponding analytical reports.
- Improved reaction capabilities due to the improved situational picture and new functional services provided by EFS leading to better reaction capabilities, which will allow border guards to control existing migration routes in a timelier manner and forecast future migration routes.

Compared to Option 2, the benefits of an EU-Confidential network brought by Option 2.1 are a potential increase in the number of analytical report generated, a potential increase in the number of operational assets reported in the operational layer and a higher frequency in the exchange of sensitive information between neighbouring NCCs. In turn, this has the potential to lead to a better situational analysis and improved reaction capability.

Figure 5 illustrates the key operational benefits delivered through Option 2.

*Figure 5. Illustration of the key operational benefits delivered through Option 2*

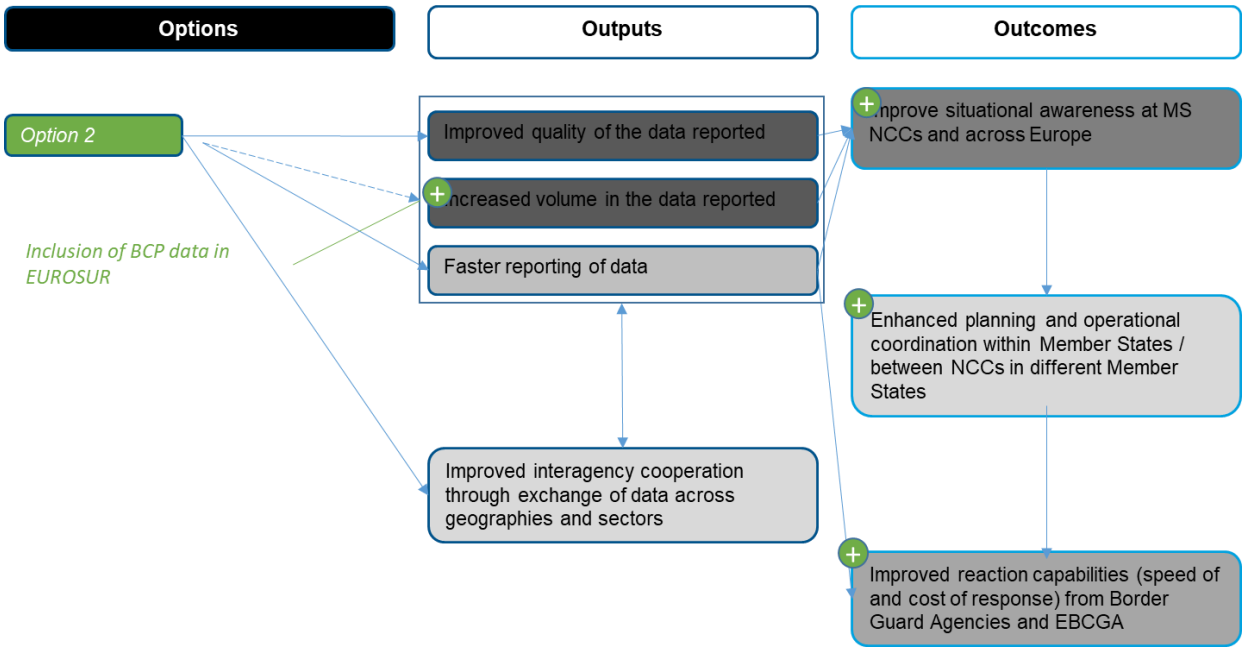



Table 9 summarises the benefits brought by Option 2[61].

Table 9. *Operational benefits delivered by Option 2 compared to the baseline situation*

| Type of operational benefit | Baseline values | Option 2 indicator values |
|---|---|---|
| **Improvement in data quality, flow and speed of reporting** | | |
| Data quality (re-entry rate) | Greater than 135% | **Less than 100%** |
| Volume of data – events | 28,000 | **60,000** |
| Volume of data - assets participating in joint operations | 0% | **Limited benefits** |
| Volume of data - analytical reports | 500 | **1,100** |

[61] Refer to Annex 3 for detailed benefit calculations and assumptions.

| Type of operational benefit | Baseline values | Option 2 indicator values |
|---|---|---|
| Latency of data (events) | 50% reported within 24 hours | **All events are reported within 24 hours** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)** | | |
| Number of cooperation agreement by sector | 9 | **10** |
| Number of data or functional services covered by EU level inter-agency agreements | 13 | **15** |
| Number of analytical services exchanged at EU level falling within the scope of the agreements | A minimum of 300 per year | A minimum of 300 per year |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)** | | |
| Proportion of NCCs exchanging data related to events with neighbouring NCCs on a regular basis | 77% | **80%** |
| Proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis | 0% | **Less than 100%** |
| Proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis | 7% | **28%** |
| Proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level) | 33% | **Greater than 33%** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)** | | |
| Working arrangements between EBCGA and third countries | 19 | 19 |
| Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | 0 | 0 |
| Bilateral agreements between Member States and third countries (or third countries part of the regional networks) | 26 | 26 |
| **Improved situational awareness at Member States' NCCs and across Europe** | | |
| Coverage of border sections (by Land / Sea / Air border) (%) | 50% | **Min 50%** |
| Coverage of border crossing points (%) | Max 66% | **100%** |
| Coverage of external air border (%) | 0% | **Limited benefits** |

| Type of operational benefit | Baseline values | Option 2 indicator values |
|---|---|---|
| Coverage of irregular migration phenomena | 3 | **A minimum of 3** |
| Coverage of border control assets included in the operational layer (%) | 30% | 30% |
| **Enhanced planning and operational coordination between NCCs in different Member States** | | |
| Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside Joint Operations) | 0% | **Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions as per Art. 10.5(a) Regulation 2013/1052** |
| Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations) | 0% | **Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions. as per Art. 10.5(a) of Regulation 2013/1052** |
| Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section | 0% | **No effect** |
| Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section | 0% | **No effect** |
| **Improved reaction capabilities from Border Guard Agencies and EBCGA[62]** | | |

[62] Adding a confidential network is likely to result in improved reaction capabilities going beyond the effects brought by Option 2. See also Table A3.7 in Annex 2.

| Type of operational benefit | Baseline values | Option 2 indicator values |
|---|---|---|
| Number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours | 1934 hours | **at least 2000 hours** |
| Size of the area covered by joint patrols (Km2) in high risk areas | 784,870 $km^2$ | **at least 800,000 $km^2$** |
| Number of interceptions made following EFS detections | 127 | **at least 250** |

***Key:*** *indicators marked in green denote an improvement compared to the baseline situation. Indicators marked in amber denote a potential for improvement compared to the baseline situation. Indicators left in* ***black*** *do not signal any change.*

## 3.5 Option 3: Compulsory inclusion of Air Border Surveillance

This option builds on Option 2 and includes the information from Air Border Surveillance systems[63]. It aims to extend the scope of EUROSUR[64] to report incident at EU external Air borders including by aircraft and remotely piloted aviation systems (RPAS)[65]. This option can be introduced immediately before the start of the next multi-annual financial period (i.e. 2020). It builds on the following assumptions on cost implications:

- **Operating and IT equipment**: The reception and analysis of information from air border surveillance systems in the 30 Member States will have to be reported to their NCCs and shared on EUROSUR. The EBCGA will develop a technical solution to allow NCCs to access air border surveillance data as part of EUROSUR. The technical solution will have to be implemented in each of the NCCs not currently receiving / analysing this data flow. EUROSUR Fusion Services will have to develop an application for analysing and reporting on air border surveillance data at EU level.
- **Additional staff**: At Member State level, extra staff will be needed to analyse air border surveillance data in the NCC. At EU level, EUROSUR Fusion Services will also require additional staff to provide the corresponding product and services. Training courses developed by the EBCGA and targeting analysts in the NCCs will need to be implemented.
- **Communication and maintenance:** Decision support applications will need to be developed and maintained to provide strategic air border surveillance using advanced technology.

**Overall, the total estimated cost of Option 3 is € 947 million[66]. The estimated additional cost (costs above the costs incurred in Option 2) is €121 million.** Table 10 breaks down the total cost for Option 3.

Table 10. *Total and additional cost of Option 3 (EUR million)*

| EBCGA | Total cost Option 3 (million EUR) | Additional cost compared to Option 2 (million EUR) |
|---|---|---|
| Infrastructure | 0.2 | 0 |
| Operating and IT equipment | 42 | 20 |
| Staff cost | 65 | 5 |
| Communication & maintenance | 198 | 54 |
| **Total EBCGA** | **305** | **79** |
| **Member States** | **Total cost Option 3 (million EUR)** | **Additional cost compared to Option 2 (million EUR)** |
| Infrastructure | 131 | 1 |
| Operating and IT equipment | 32 | 2 |
| Staff cost | 273 | 9 |
| Communication & maintenance | 205 | 30 |
| **Total Member States** | **642** | **42** |

[63] There is a need to tackle new criminal trends which are carried out across air borders. This includes illegal activity such as smuggling carried out using small airplanes and helicopters, as well as the threat of RPAS.

[64] Currently, the surveillance of air borders is provided by Member States on a voluntary basis.

[65] Also referred to as unmanned aerial vehicles (UAVs).

[66] If an EU confidential communication network is considered these costs will rise to €979 million.

| EBCGA | Total cost Option 3 (million EUR) | Additional cost compared to Option 2 (million EUR) |
|---|---|---|
| **Overall Total Costs of Option 3** | **947** | **121** |
| **Overall Total Costs of Option 3.1 (including an EU confidential communication network)** | **979** | |

**Under Option 3 the average annual total number of staff** related to EUROSUR **at Member State level is 1,217. The staff** related to EUROSUR oversight, management and development **in EBCGA** is expected to increase to 77 (from 71 in Option 2). If an EU-Confidential network is considered, the FTE figures would be 1,217 and 93 at a Member State level and in EBCGA respectively.

Table 11 summarises the benefits brought by Option 3 compared to the baseline situation. Compared to Option 2, Option 3 will lead to an enhanced situational awareness. It should allow Member States and EBCGA to build a comprehensive understanding of the trends and modus operandi in the use of aircraft and or RPAS being for illegal activities related to irregular migration and or cross border crime. The operational benefits from this option will have the potential to improve risk analysis, enhance planning and operational coordination. A more complete situational picture will hence lead to better reaction capabilities, which will allow border guards to close existing migration routes in a timelier manner and anticipate future migration routes. More specifically these benefits include:

- an increase in the volume of the data reported (events) and in the number of analytical reports generated via the collection of data on air border surveillance from aircraft and or RPAS being used for illegal activities related to irregular migration and or cross border crime.
- Inter-agency agreements at EU level on the exchange of data and services related to air border surveillance will influence the volume of the data reported but also the cooperation between the different bodies.
- An improved interagency cooperation between Member States as well as within Member States via the exchange of analytical reports and the number of authorities involved in border control exchanging data;
- An improved situational awareness via the coverage of all border sections (sea, land and air), the coverage of the external air border, and the coverage of one additional irregular migration phenomena i.e. the suspected irregular crossing via aircraft or RPAS of EU external borders"[67].

Compared to Option 3, the benefits of an EU-Confidential network brought by Option 3.1 are a potential increase in the number of events reported and analytical reports generated, a potential increase in the number of assets reported in the operational layer and a higher frequency of the exchange of sensitive information between neighbouring NCCs and between Member States' own authorities. In turn, this has the potential to lead to a better situational analysis and improved reaction capability.

[67] This will also be achieved due to better quality control of data, the complete provision of BCP data and systematic reporting of events.

Figure 6 illustrates the key operational benefits delivered through Option 3

*Figure 6. Illustration of the key operational benefits delivered through Option 3*

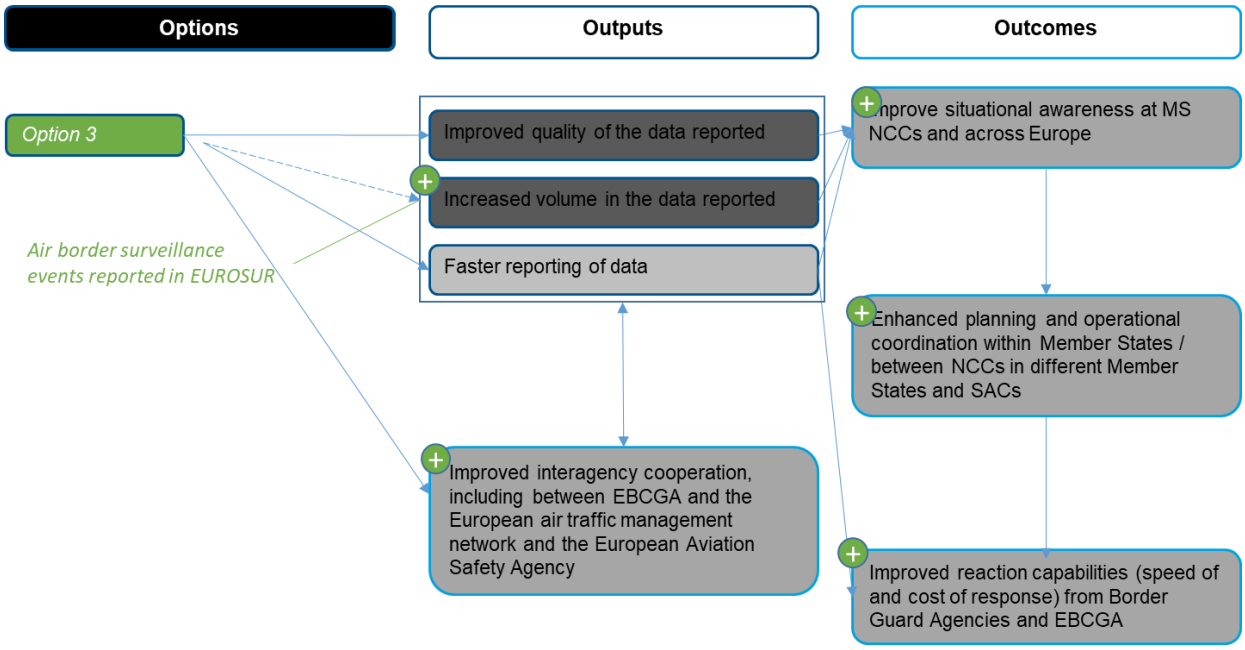



Table 11 summarises the benefits brought by Option 3[68].

Table 11. *Operational benefits delivered by Option 3 compared to the baseline situation*

| Type of operational benefit | Baseline values | Option 3 indicator values |
|---|---|---|
| **Improvement in data quality, flow and speed of reporting** | | |
| Data quality (re-entry rate) | Greater than 135% | **Less than 100%** |
| Volume of data – events | 28,000 | **66,000** |
| Volume of data - assets participating in joint operations | 0% | **Limited benefits** |
| Volume of data - analytical reports | 500 | **1,200** |
| Latency of data (events) | 50% reported within 24 hours | **All events are reported within 24 hours** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)** | | |
| Number of cooperation agreement by sector | 9 | **10** |
| Number of data or functional services covered by EU level inter-agency agreements | 13 | **16** |
| Number of analytical services exchanged at EU level falling within the scope of the agreements | A minimum of 300 per year | A minimum of 300 per year |

[68] Refer to Annex 3 for detailed benefit calculations and assumptions.

| Type of operational benefit | Baseline values | Option 3 indicator values |
|---|---|---|
| **Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)** | | |
| Proportion of NCCs exchanging data related to events with neighbouring NCCs on a regular basis | 77% | **80%** |
| Proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis | 0% | **Limited benefits** |
| Proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis | 7% | **31%** |
| Proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level) | 33% | **Greater than 36%** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)** | | |
| Working arrangements between EBCGA and third countries | 19 | 19 |
| Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | 0 | 0 |
| Bilateral agreements between Member States and third countries (or third countries part of the regional networks) | 26 | 26 |
| **Improved situational awareness at Member States' NCCs and across Europe** | | |
| Coverage of border sections (by Land / Sea / Air border) (%) | 50% | **100%** |
| Coverage of border crossing points (%) | Max 66% | **100%** |
| Coverage of external air border (%) | 0% | **High benefits** |
| Coverage of irregular migration phenomena | 3 | **A minimum of 4** |
| Coverage of border control assets included in the operational layer (%) | 30% | 30% |
| **Enhanced planning and operational coordination between NCCs in different Member States** | | |

| Type of operational benefit | Baseline values | Option 3 indicator values |
|---|---|---|
| Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside Joint Operations) | 0% | **Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions as per Art. 10.5(a) Regulation 2013/1052** |
| Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations) | 0% | **Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions. as per Art. 10.5(a) of Regulation 2013/1052** |
| Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section | 0% | **No effect** |
| Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section | 0% | **No effect** |
| **Improved reaction capabilities from Border Guard Agencies and EBCGA[69]** | | |
| Number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours | 1934 hours | **at least 2000 hours** |
| Size of the area covered by joint patrols (Km2) in high risk areas | 784,870 $km^2$ | **at least 800,000 $km^2$** |
| Number of interceptions made following EFS detections | 127 | **at least 250** |

***Key:*** *indicators marked in green denote an improvement compared to the baseline situation. Indicators marked in amber denote a potential for improvement compared to the baseline situation. Indicators left in* ***black*** *do not signal any change.*

[69] Adding a confidential network is likely to result in improved reaction capabilities going beyond the effects brought by Option 3. See also Table A3.7 in Annex 2.

## 3.6 Option 4: Inclusion of other Integrated Border Management components

Option 4 corresponds to a range of additional sub-options and builds on Option 3 to cover the components of Integrated Border Management as defined in Article 4 of the EBCG Regulation, some of which are still to be further detailed in the framework of on-going discussion with experts from Member States and the EBCGA.

### 3.6.1 Option 4.1: Improved information exchange with third countries

Option 4.1 aims, within the framework of the EUROSUR Regulation, to exchange information with neighbouring third countries that have already established a cooperation agreement relating to information exchange on border surveillance either through bilateral relationships with a Member State (proxy) via a regional network (such as Seahorse Networks), or directly with the EBCGA via a working arrangement[70]. The nature and extent of the data exchanged, as well as the access of third countries to EUROSUR products and services[71], will be governed by the bilateral agreements or multilateral agreements establishing regional networks. Hence, the nature and extent of the data exchanged may vary from one third country to another. A dedicated data model and/or data governance arrangements would need to be defined on a third country basis. Some EUROSUR Fusion Services will be available to third countries and events from third countries will be fed into the EUROSUR European situational picture after having been validated. This option can be introduced right before the start of the next multi-annual financial period (i.e. 2020). It builds on the following assumptions on cost implications[72]:

- **Infrastructure-related costs**: The structure and composition of third country NCCs may need establishing or upgrading (i.e. security costs of the facilities). It is assumed that 19 third countries (out of a total of 30 third countries) in the neighbourhood of the EU and with whom some form of cooperation has been established in the context of the mandate of the EBCGA or implementation of EUROSUR will need to set-up or significantly upgrade their current NCC in order to respond to more elaborate requirements as featuring in all Options from Option 1 to Option 4.1[73].
- **Operating and IT equipment costs**: The NCCs would need to: establish a link between themselves and the EUROSUR network via specific situational pictures; upgrade their communication infrastructure; or implement new applications in third countries' NCCs. New applications for EUROSUR Fusion Services are required specially to manage data models on a third country by third country basis.
- **Staff-related costs**. A similar number of staff will be required in third country NCCs as are needed in Member State NCCs. EBCGA staff working for EUROSUR Fusion Services will be needed to analyse data coming from third countries. EBCGA training will be developed and made available to third country NCC staff.

[70] All third countries currently cooperating with EU Member States via the Seahorse networks, CoastNet and the Black Sea Border Coordination and Information Centre and those countries with which EBCGA has a working arrangement will be linked to EUROSUR. In addition, a Western Balkan regional network for border surveillance will be established and linked to EUROSUR. Lastly, another regional network for border surveillance and its integration to EUROSUR with Moldova and Ukraine with following Member States Poland, Slovakia, Hungary and Romania will be established.

[71] For instance, the EBCGA or Member States authorities may establish and maintain specific situational pictures to support specific operational activities at the external borders or to share information with third countries. These specific situational pictures will be composed of a sub-set of information of the national and European situational pictures and contain or display information in line with (bilateral or multilateral) cooperation agreements between EBCGA, Member States / Schengen Associated States and third countries.

[72] The costs of bringing third countries to EUROSUR will come directly from the earmarked EUROSUR budget as opposed to funding available from Cooperation Instruments as it is currently the case with external funding instruments such as those under the management of DG NEAR and or DEVCO.

[73] The operational set-up of third countries for border surveillance activities vary on a third county basis. Some Third Countries have received funding from DG NEAR or DG DEVCO instrument to set-up basic operation control rooms whilst others have a more elaborate set-up.

- **Communication and maintenance costs:** Additional support applications will be required so that EUROSUR Fusion Services can provide the information needed to support NCCs and decision making. Maintenance costs will also be incurred.

**Overall, the total estimated cost of Option 4.1 is €1.1 billion[74] for EBCGA, Member States and third countries**. The estimated additional cost of Option 4.1 (above the costs in Option 3) is €159 million. Table 12 breaks down the total cost for Option 4.1.

Table 12. *Total and additional cost of Option 4.1 (EUR million)*

| **EBCGA** | **Total cost Option 4.1 (million EUR)** | **Additional cost compared to Option 3 (million EUR)** |
|---|---|---|
| Infrastructure | 0.2 | 0 |
| Operating and IT equipment | 53 | 11 |
| Staff cost | 74 | 8 |
| Communication & maintenance | 206 | 8 |
| **Total EBCGA** | **333** | **27** |
| **Member States** | **Total cost Option 4.1 (million EUR)** | **Additional cost compared to Option 3 (million EUR)** |
| Infrastructure | 131 | 0 |
| Operating and IT equipment | 32 | 0 |
| Staff cost | 273 | 0 |
| Communication & maintenance | 209 | 4 |
| **Total Member States** | **645** | **4** |
| **Third countries** | **Total cost Option 4.1 (million EUR)** | **Additional cost compared to Option 3 (million EUR)** |
| Infrastructure | 11 | 11 |
| Operating and IT equipment | 2 | 2 |
| Staff cost | 47 | 47 |
| Communication & maintenance | 69 | 69 |
| **Total Third countries** | **128** | **128** |
| **Overall Total Costs of Option 4.1** | **1106** | **159** |
| *Total excluding third countries* | *978* | *31* |
| **Overall Total Costs of Option 4.1** (including an EU confidential communication network and including third country costs) | **1138** | |

**Under Option 4.1, the estimated annual total number of staff** related to EUROSUR **at Member State level is 1,217. The staff** related to EUROSUR oversight, management and development **in EBCGA** is expected to increase to **87**. If an EU-Confidential network is considered, the FTE figures would be 1,217 and 103 at a Member State level and in the EBCGA respectively. A further 665 FTE staff will be required in third countries.

[74] If an EU confidential communication network is considered these costs will rise to €1.14 billion.

Table 13 summarises the benefits brought by Option 4.1 compared to Option 3[75]. Compared to Option 3, Option 4.1 will lead to:

Option 4.1 will further improve the situational awareness of Member States, SACs, and EBCGA. The data provided by third countries will EUROSUR will specifically improve the pre-frontier area situational awareness, which in turn could lead to improved risk analysis and forecasting, improved operational planning and more efficient use of operational assets. The exchange of information with third countries for the purposes of specific situational pictures will facilitate operational cooperation, improving the efficiency and effectiveness of border surveillance or border checks. More specifically this will option will result in:

- A potential relative decrease in the speed of reporting for part of the data entered into EUROSUR due to the involvement of third country reporting and the expected increase in the volume of events reported.
- An increase in the volume of the data reported (i.e. events) and in the number of analytical reports generated;
- An improved interagency cooperation between Member States as well as within Member States via the exchange of analytical reports and the number of authorities involved in border control exchanging data;
- An improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)
- Improved support to specific operational activities at the external borders or improved cooperation with due to sharing of specific operational pictures with third countries.
- An improved situational awareness via reporting of pre-frontier data and risk analysis (from a minimum of 19[76] to a maximum of 30 third countries in the neighbourhood of the EU)

In turn, the above benefits are also expected to provide better intelligence and forecasting, thus contributing to a more efficient planning and coordination of Member State authorities and ultimately reaction capabilities.

Compared to Option 4.1, the benefits of an EU-Confidential network brought by Option 4.11 are the potential for a higher volume of events recorded and analysis generated and a higher frequency exchange of sensitive information between neighbouring NCCs. In turn, this has the potential to lead to a better situational analysis and improved reaction capability.

Figure 7 illustrates the key operational benefits delivered through Option 4.1.

[75] Refer to Annex 3 for detailed benefit calculations and assumptions.

[76] Nineteen third countries have signed bilateral agreements or multilateral agreements with either EBCGA and or in the context of Regional Networks.

*Figure 7. Illustration of the key operational benefits delivered through Option 4.1*

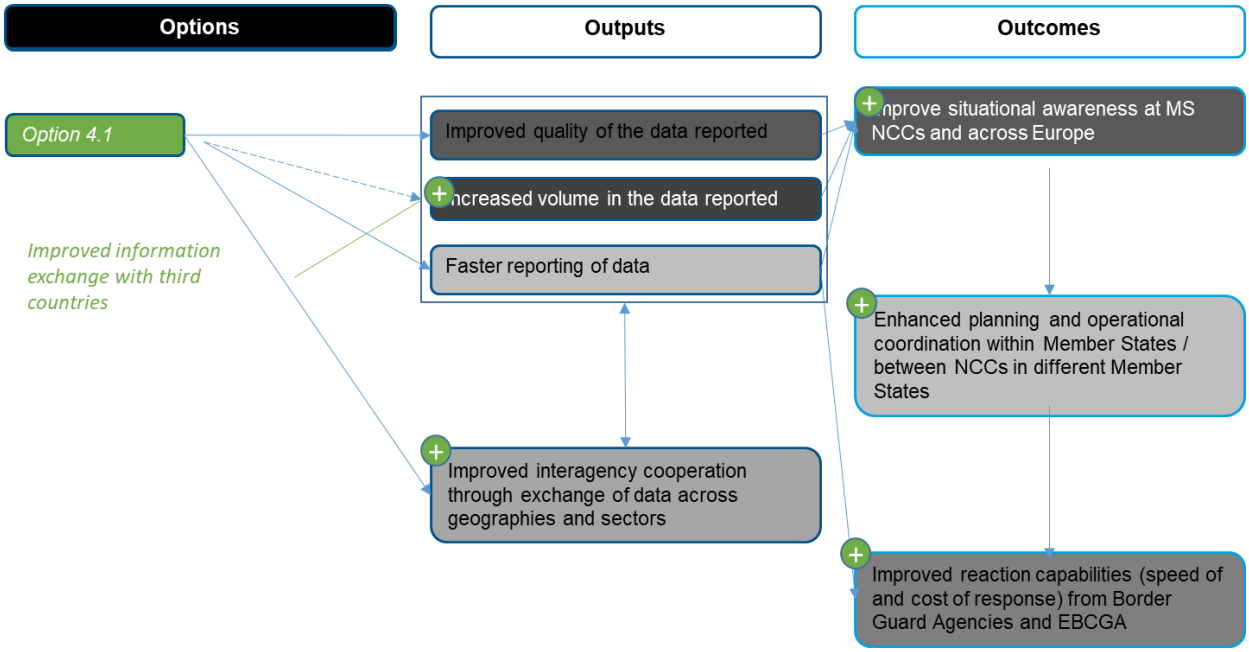



Table 13 summarises the benefits brought by Option 4.1[77].

Table 13. *Operational benefits delivered by Option 4.1 compared to Option 3*

| Type of operational benefit | Option 3 indicator values | Option 4.1 indicator values |
|---|---|---|
| **Improvement in data quality, flow and speed of reporting** | | |
| Data quality (re-entry rate) | Less than 100% | Less than 100% |
| Volume of data – events | 66,000 | **84,000** |
| Volume of data - assets participating in joint operations | Limited benefits | Limited benefits |
| Volume of data - analytical reports | 1,200 | **1,500** |
| Latency of data (events) | All events are reported within 24 hours | **Most of the event reported within 24 hours** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)** | | |
| Number of cooperation agreement by sector | 10 | **12** |
| Number of data or functional services covered by EU level inter-agency agreements | 16 | 16 |
| Number of analytical services exchanged at EU level falling within the scope of the agreements | A minimum of 300 per year | A minimum of 300 per year |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)** | | |

[77] Refer to Annex 3 for detailed benefit calculations and assumptions.

| Type of operational benefit | Option 3 indicator values | Option 4.1 indicator values |
|---|---|---|
| Proportion of NCCs exchanging data related to events with neighbouring NCCs on a regular basis | 80% | 80% |
| Proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis | Limited benefits | Limited benefits |
| Proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis | 31% | **62%** |
| Proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level) | Greater than 36% | **Greater than 50%** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)** | | |
| Working arrangements between EBCGA and third countries | 19 | **25** |
| Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | 0 | **17** |
| Bilateral agreements between Member States and third countries (or third countries part of the regional networks) | 26 | **26 at the minimum** |
| **Improved situational awareness at Member States' NCCs and across Europe** | | |
| Coverage of border sections (by Land / Sea / Air border) (%) | 100% | 100% |
| Coverage of border crossing points (%) | 100% | 100% |
| Coverage of external air border (%) | High benefits | High benefits |
| Coverage of irregular migration phenomena | A minimum of 4 | A minimum of 4 |
| Coverage of border control assets included in the operational layer (%) | 30% | 30% |
| **Enhanced planning and operational coordination between NCCs in different Member States** | | |
| Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside Joint Operations) | Left at the discretion of Member States (<0% and >to 100%) | **Potential for operational plans for operations on territory of third countries** |

| Type of operational benefit | Option 3 indicator values | Option 4.1 indicator values |
|---|---|---|
| | | **to be agreed with neighbouring EU MS. (Art. 75.3) of EBCG Proposal Regulation** |
| Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations) | Left at the discretion of Member States (<0% and >to 100%) | **Potential for operational plans for operations on territory of third countries to be agreed with neighbouring EU MS. (Art. 75.3) of EBCG Proposal Regulation** |
| Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section | Left at the discretion of Member States (<0% and >to 100%) | **Potential for improvement if a model third country agreement and implementing act details the information layers in specific situational picture (Art. 25.4 of EBCG Proposal Regulation** |
| Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section | Left at the discretion of Member States (<0% and >to 100%**)** | **Potential for improvement if a model third country agreement and implementing act details the information layers in specific situational picture (Art. 25.4 of EBCG Proposal Regulation** |

| Type of operational benefit | Option 3 indicator values | Option 4.1 indicator values |
|---|---|---|
| **Improved reaction capabilities from Border Guard Agencies and EBCGA[78]** | | |
| Number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours | at least 2000 hours | at least 2000 hours |
| Size of the area covered by joint patrols (Km2) in high risk areas | at least 800,000 km2 | at least 800,000 km2 |
| Number of interceptions made following EFS detections | at least 250 | **at least 500** |

***Key:*** *indicators marked in green denote an improvement compared to Option 3. Indicators marked in amber denote a potential for improvement compared to Option 3. Indicator marked in red demote a decrease in performance compared to option 3. Indicators left in* ***black*** *do not signal any change.*

### 3.6.2 Option 4.2: Inclusion of secondary movements

Option 4.2 aims to include reporting on the secondary movements of migrants in EUROSUR[79] and hence in the NSP and ESP[80]. This policy option will support Member States to serve their policy, strategic and tactical needs, but most importantly to plan their border and police operations. Reporting on secondary movements can benefit existing mechanisms such as the Frontex Risk Analysis Network (FRAN) and the Common Integrated Risk Analysis Model (CIRAM) in the framework of EUROSUR. It will connect irregular migration data across the EU external borders with intra-EU/SAC secondary movements and use the intra-Schengen picture to reach conclusions on the situation at the EU external borders[81]. This option can be introduced right before the start of the next multi-annual financial period (i.e. 2020). It builds on the following assumptions on cost implications:

- **Staff costs**: Some NCCs may need to recruit experts in the analysis of secondary movement to interpret data feeds coming to the NCCs. Likewise, this new data stream will require the recruitment of additional analysts to provide the related EUROSUR Fusion Services and products.
- **Communication and maintenance**: this option will require additional support applications so that EUROSUR Fusion Services can provide the information needed to support NCCs and decision making. Corresponding maintenance costs will also be incurred.

**Overall, the total estimated cost of Option 4.2 is €970 million[82]**. The estimated additional cost (compared to Option 3) is €23 million.

[78] Adding a confidential network is likely to result in improved reaction capabilities going beyond the effects brought by Option 4.1. See also Table A3.7 in Annex 2.

[79] Member States will report secondary movements into EUROSUR at the same time (or before) they report it in EURODAC.

[80] Secondary movements occur when refugees or asylum-seekers move from the country in which they first arrived to seek protection or for permanent resettlement elsewhere http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2017)608728

[81] The reporting of secondary movements in EUROSUR will be systematic and compulsory to ensure exhaustiveness of reporting in the EU.

[82] If an EU confidential communication network is considered these costs will rise to €1 billion.

Table 14 breaks down the total cost for Option 4.2.

Table 14. *Total and additional cost of Option 4.2 (EUR million)*

| EBCGA | Total cost Option 4.2 (million EUR) | Additional cost compared to Option 3 (million EUR) |
|---|---|---|
| Infrastructure | 0.2 | 0 |
| Operating and IT equipment | 42 | 0 |
| Staff cost | 67 | 2 |
| Communication & maintenance | 204 | 6 |
| **Total EBCGA** | **313** | **8** |
| **Member States** | **Total cost Option 4.2 (million EUR)** | **Additional cost compared to Option 3 (million EUR)** |
| Infrastructure | 132 | 1 |
| Operating and IT equipment | 32 | 0 |
| Staff cost | 282 | 9 |
| Communication & maintenance | 210 | 4 |
| **Total Member States** | **656** | **15** |
| **Overall Total Costs of Option 4.2** | **970** | **23** |
| **Overall Total Costs of Option 4.2 (including an EU confidential communication network)** | **1003** | |

**Under Option 4.2, the average annual total number of staff** related to EUROSUR **at Member State level is 1,247,** as Member States introduce staff with skills and expertise in secondary movement and data sources. The staff related to EUROSUR oversight, management and development **in EBCGA** is expected to increase to 79 (from 77 in Option 3). If an EU-Confidential network is considered, the FTE figures would be 1,247 and 103 at Member State level and in EBCGA respectively.

Table 15 summarises the benefits brought by Option 4.2 compared to Option 3[83]. Compared to Option 3, Option 4.2 will improve the situational awareness even further. Data on secondary movements, are key to have a thorough understanding the situational picture. As, certain share of irregular migrants crossing the external border remain undetected, the secondary movements data, along with data on migrants detected inland, becomes complementary and helps understand the true number of irregular entries, as well as the possible further movement of migrants that already have received asylum status. More specifically, the operational benefits will include:

- an increase in the volume of the data reported (i.e. events) and in the number of analytical reports generated;
- an improved interagency cooperation at EU level via functional services covered by EU level inter-agency agreements (i.e. monitoring of secondary movement services)[84];

[83] Refer to Annex 3 for detailed benefit calculations and assumptions.

[84] This will also contribute to a better alignment of EUROSUR to the European Integrated Border Management components envisaged in Article 4 of the European Border and Coast Guard Regulation (2016/1624). Article 4 (a) of the European Border and Coast Guard Regulation (2016/1624) mentions measures related to the referral of persons who need, or wish to apply for, international protection.

- an improved interagency cooperation between and within Member States via the exchange of analytical reports and the number of authorities involved in border control exchanging data; and
- an improved situational awareness via the coverage of one additional irregular migration phenomenon (i.e. secondary movements).

Compared to Option 4.2, the benefits of an EU-Confidential network brought by Option 4.21 include the potential for a higher volume of events reported and analytical reports generated and a higher frequency of the exchange of sensitive information between neighbouring NCCs. In turn, this has the potential to lead to a better situational analysis and improved reaction capability.

Figure 8 illustrates the key operational benefits delivered through Option 4.2

*Figure 8. Illustration of the key operational benefits delivered through Option 4.2*

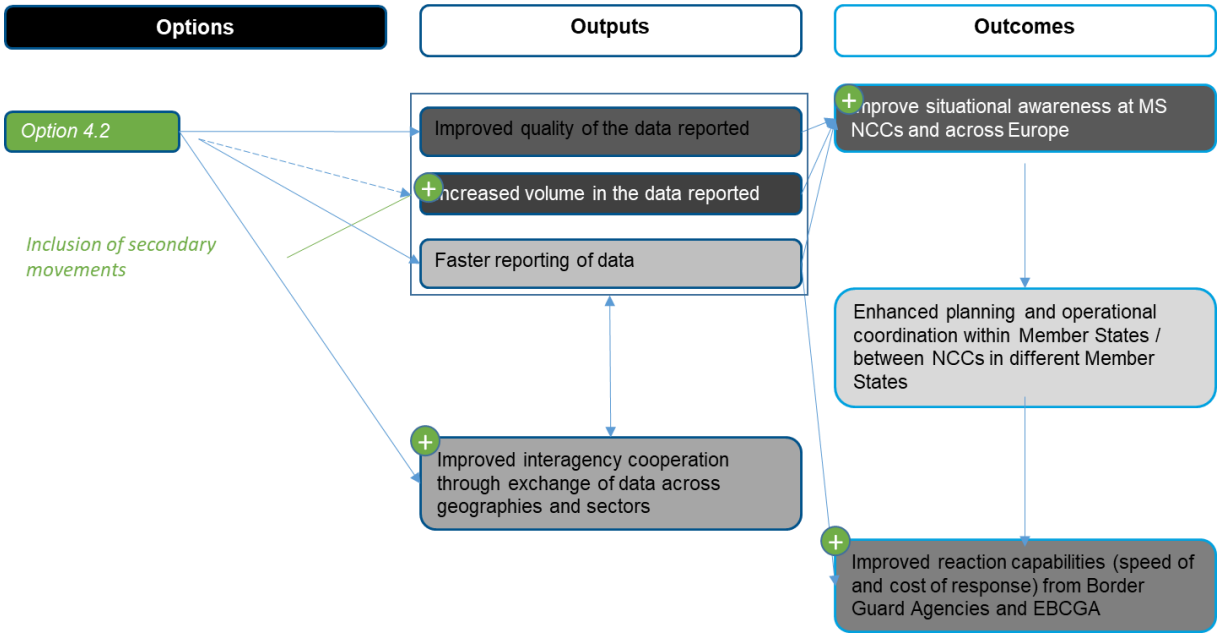



Table 15 summarises the benefits brought by Option 4.2[85].

Table 15. *Operational benefits delivered by Option 4.2 compared to Option 3*

| Type of operational benefit | Option 3 indicator values | Option 4.2 indicator values |
|---|---|---|
| **Improvement in data quality, flow and speed of reporting** | | |
| Data quality (re-entry rate) | Less than 100% | Less than 100% |
| Volume of data – events | 66,600 | **84,000** |
| Volume of data - assets participating in joint operations | Limited benefits | Limited benefits |
| Volume of data - analytical reports | 1,200 | **1,500** |
| Latency of data (events) | All events are reported within 24 hours | All events are reported within 24 hours |

[85] Refer to Annex 3 for detailed benefit calculations and assumptions.

| Type of operational benefit | Option 3 indicator values | Option 4.2 indicator values |
|---|---|---|
| **Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)** | | |
| Number of cooperation agreement by sector | 10 | 10 |
| Number of data or functional services covered by EU level inter-agency agreements | 16 | **17** |
| Number of analytical services exchanged at EU level falling within the scope of the agreements | A minimum of 300 per year | A minimum of 300 per year |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)** | | |
| Proportion of NCCs exchanging data related to events with neighbouring NCCs on a regular basis | 80% | 80% |
| Proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis | Limited benefits | Limited benefits |
| Proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis | 31% | **62%** |
| Proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level) | Greater than 36% | **100%** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)** | | |
| Working arrangements between EBCGA and third countries | 19 | 19 |
| Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | 0 | 0 |
| Bilateral agreements between Member States and third countries (or third countries part of the regional networks) | 26 | 26 |
| **Improved situational awareness at Member States' NCCs and across Europe** | | |
| Coverage of border sections (by Land / Sea / Air border) (%) | 100% | 100% |
| Coverage of border crossing points (%) | 100% | 100% |
| Coverage of external air border (%) | High benefits | High benefits |
| Coverage of irregular migration phenomena | A minimum of 4 | **A minimum of 5** |

| Type of operational benefit | Option 3 indicator values | Option 4.2 indicator values |
|---|---|---|
| Coverage of border control assets included in the operational layer (%) | 30% | 30% |
| **Enhanced planning and operational coordination between NCCs in different Member States** | | |
| Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside Joint Operations) | Left at the discretion of Member States (<0% and >to 100%) | **Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions as per Art. 10.5(a) Regulation 2013/1052** |
| Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations) | Left at the discretion of Member States (<0% and >to 100%) | **Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions. as per Art. 10.5(a) of Regulation 2013/1052** |
| Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section | Left at the discretion of Member States (<0% and >to 100%) | **No effect** |
| Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section | Left at the discretion of Member States (<0% and >to 100%**)** | **No effect** |
| **Improved reaction capabilities from Border Guard Agencies and EBCGA[86]** | | |
| Number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours | at least 2000 hours | at least 2000 hours |

[86] Adding a confidential network is likely to result in improved reaction capabilities going beyond the effects brought by Option 4.2. See also Table A3.7 in Annex 2.

| Type of operational benefit | Option 3 indicator values | Option 4.2 indicator values |
|---|---|---|
| Size of the area covered by joint patrols (Km2) in high risk areas | at least 800,000 km2 | at least 800,000 km2 |
| Number of interceptions made following EFS detections | at least 250 | **at least 500** |

***Key:*** *indicators marked in green denote an improvement compared to Option 3. Indicators marked in amber denote a potential for improvement compared to Option 3. Indicators left in* ***black*** *do not signal any change.*

## 3.7 Option 4.3: Enhanced coordinated planning and conduct of border control operations

Option 4.3 aims to (better) use EUROSUR products and services for the purposes of the planning, coordination and conduct of border surveillance operations. The EUROSUR Regulation indicates that the NCCs shall support the planning and implementation of national border surveillance activities and that the operational layer shall contain information on assets including the deployment plan, including the area of operation and patrol schedules in the context of joint operations, pilot projects and rapid interventions. However, there is currently no coordination of Member State operational plans and/or coordination of operations other than in the context of joint operations, pilot projects and rapid interventions. All Member States will be affected by this option. It builds on the following assumptions on cost implications:

- **Operating and IT equipment**: although Member States are already providing information on the deployment plans, operational areas, asset types and the live location of assets into EUROSUR, applications will have to be developed by EBCGA for the use of EUROSUR Fusion Services.
- **Staff costs**: Additional staff for analysing joint operation planning and/or coordination of national operational plans will be required at the level of the NCC and or the Agency. EBCGA will have to recruit additional planning officers, IT experts as well as risk analysts.
- **Communication and maintenance:** Additional decision support applications at EUROSUR Fusion Services will need to be developed and implemented to treat planning and operational data. Corresponding maintenance costs will be incurred.

**Overall, the total estimated cost of Option 4.3 is €1040 million[87]. The estimated additional cost (compared to Option 3) is €93 million.** Table 16 breaks down the total cost for Option 4.3.

[87] If an EU confidential communication network is considered these costs will rise to €1072 million.

Table 16. *Total and additional cost of Option 4.3 (EUR million)*

| EBCGA | Total cost Option 4.3 (million EUR) | Additional cost compared to Option 3 (million EUR) |
|---|---|---|
| Infrastructure | 0.2 | 0 |
| Operating and IT equipment | 47 | 5 |
| Staff cost | 105 | 40 |
| Communication & maintenance | 208 | 10 |
| **Total EBCGA** | **360** | **55** |
| **Member States** | **Total cost Option 4.3 (million EUR)** | **Additional cost compared to Option 3 (million EUR)** |
| Infrastructure | 135 | 4 |
| Operating and IT equipment | 32 | 0 |
| Staff cost | 300 | 26 |
| Communication & maintenance | 212 | 6 |
| **Total Member States** | **679** | **37** |
| **Overall Total Costs of Option 4.3** | **1040** | **93** |
| **Overall Total Costs of Option 4.3 (including an EU confidential communication network)** | **1072** | |

**Under Option 4.3. the estimated annual total number of staff** related to EUROSUR **at Member State level is 1,307. The staff** related to EUROSUR oversight, management and development **in EBCGA** is expected to increase to 121. If an EU confidential network is considered, the FTE figures would be 1,307 and 137 at Member State level and in EBCGA respectively.

Table 17 summarises the benefits brought by Option 4.3 compared to Option 3[88]. Compared to Option 3, Option 4.3 will lead to significant improvement of operational cooperation – the sharing of operational plans, especially for border sections with high and critical impact levels, with Member States and ECBG will lead to a substantial improvement in operational coordination. It will make operational planning a much more transparent and efficient process, where Member States and the ECBG will be facilitated in finding complementarity and synergies in planning the effective use of resources needed for the surveillance activities in specific border sections of concern. It will allow for a truly integrated response, where both a neighbouring Member State and the ECBG can consider an integrated operational response, especially in the time of crises. More specifically, the implementation of the option will lead to:

- an increase in the number of assets included in the operational layer;
- an improved interagency cooperation between and within Member States via the exchange of events, operational assets and analytical reports and the number of border control authorities involved in exchanging data;
- an improved situational awareness via an extensive coverage of relevant border control assets included in the operational layer; and

[88] Refer to Annex 3 for detailed benefit calculations and assumptions.

- enhanced planning and operational coordination between NCCs in different Member States via the sharing of information of operational assets of relevance for undertaking border control and surveillance activities.

In turn, the above is likely to improve reaction capabilities of Member States and of the EBCGA.

Compared to Option 4.3, the benefits of an EU-Confidential network brought by Option 4.31 include the potential for the exchange of a higher volume of analytical reports and the higher frequency exchange of analytical reports between neighbouring NCCs. In turn, this has the potential to lead to a better situational analysis and improved reaction capability.

Figure 9 illustrates the key operational benefits delivered through Option 4.3

*Figure 9. Illustration of the key operational benefits delivered through Option 4.3*

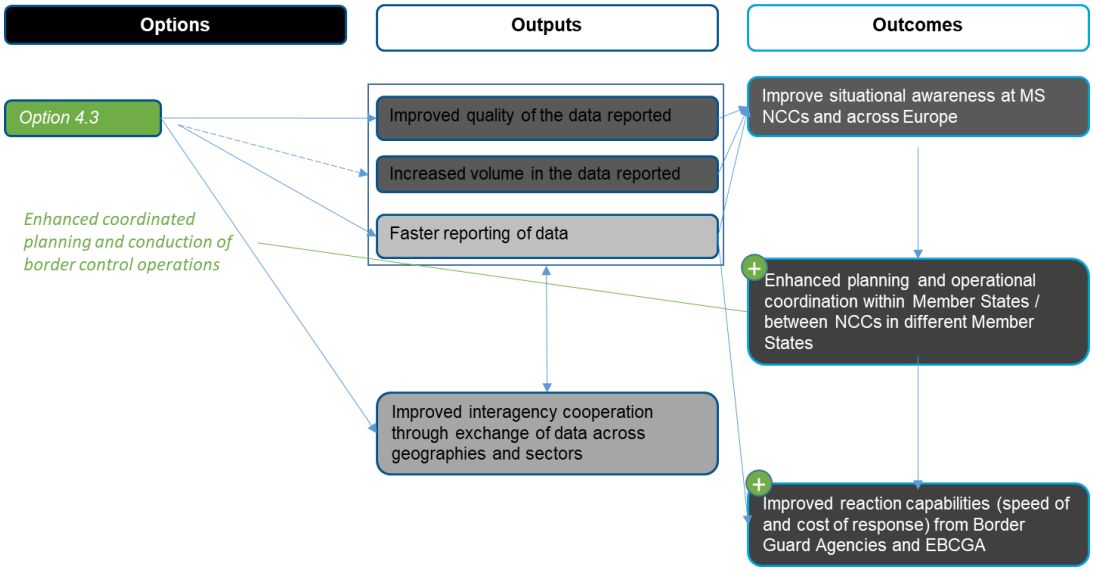



Table 17 summarises the benefits brought by Option 4.3[89].

Table 17. *Operational benefits delivered by Option 4.3 compared to Option 3*

| Type of operational benefit | Option 3 indicator values | Option 4.3 indicator values |
|---|---|---|
| **Improvement in data quality, flow and speed of reporting** | | |
| Data quality (re-entry rate) | Less than 100% | Less than 100% |
| Volume of data – events | 66,000 | 66,000 |
| Volume of data - assets participating in joint operations | Limited benefits | **High benefits** |
| Volume of data - analytical reports | 1,200 | 1,200 |
| Latency of data (events) | All events are reported within 24 hours | All events are reported within 24 hours |
| **Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)** | | |

[89] Refer to Annex 3 for detailed benefit calculations and assumptions.

| Type of operational benefit | Option 3 indicator values | Option 4.3 indicator values |
|---|---|---|
| Number of cooperation agreement by sector | 10 | 10 |
| Number of data or functional services covered by EU level inter-agency agreements | 16 | 16 |
| Number of analytical services exchanged at EU level falling within the scope of the agreements | A minimum of 300 per year | A minimum of 300 per year |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)** | | |
| Proportion of NCCs exchanging data related to events with neighbouring NCCs on a regular basis | 80% | **100%** |
| Proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis | Limited benefits | **100%** |
| Proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis | 31% | **75%** |
| Proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level) | Greater than 36% | **Greater than 66%** |
| **Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)** | | |
| Working arrangements between EBCGA and third countries | 19 | 19 |
| Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | 0 | 0 |
| Bilateral agreements between Member States and third countries (or third countries part of the regional networks) | 26 | 26 |
| **Improved situational awareness at Member States' NCCs and across Europe** | | |
| Coverage of border sections (by Land / Sea / Air border) (%) | 100% | 100% |
| Coverage of border crossing points (%) | 100% | 100% |
| Coverage of external air border (%) | High benefits | High benefits |
| Coverage of irregular migration phenomena | A minimum of 4 | A minimum of 4 |
| Coverage of border control assets included in the operational layer (%) | 30% | **Less than 100%** |

| Type of operational benefit | Option 3 indicator values | Option 4.3 indicator values |
|---|---|---|
| **Enhanced planning and operational coordination between NCCs in different Member States** | | |
| Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside Joint Operations) | Left at the discretion of Member States (<0% and >to 100%) | **100%** |
| Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations) | Left at the discretion of Member States (<0% and >to 100%) | **100%** |
| Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section | Left at the discretion of Member States (<0% and >to 100%) | **100%** |
| Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section | Left at the discretion of Member States (<0% and >to 100%) | **100%** |
| **Improved reaction capabilities from Border Guard Agencies and EBCGA[90]** | | |
| Number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours | at least 2000 hours | **Greater than 2000 hours** |
| Size of the area covered by joint patrols (Km2) in high risk areas | at least 800,000 km2 | **Greater than 800,000 km2** |
| Number of interceptions made following EFS detections | at least 250 | **at least 250** |

***Key:*** *indicators marked in green denote an improvement compared to Option 3. Indicators marked in amber denote a potential for improvement compared to Option 3. Indicators left in* ***black*** *do not signal any change.*

# 4 Conclusions

Since its adoption, the EUROSUR Regulation provided for the infrastructure and tools designed to "improve situational awareness and reaction capability at the external borders of the Member States of the Union" and, ultimately, "to detect, prevent and combat cross-border crime and illegal immigration"[91]. It established or designated a network of National Coordination Centres (NCCs), one in each Member State, to coordinate and exchange information among all the competent authorities in the field of border surveillance and the European Border and Coast Guard Agency (EBCGA). It allowed for a near-real time information exchange and spurred the coordination of national authorities involved in

[90] Adding a confidential network is likely to result in improved reaction capabilities going beyond the effects brought by Option 4.3. See also Table A3.7 in Annex 2.

[91] From the evaluation of EUROSUR (2017).

border management across Europe as well as the EBCGA. For instance, EUROSUR Fusion Services facilitated the delivery of the European Situational Picture, the Common Pre-Frontier Intelligence Picture and the Common Application of Surveillance Tools. Hence, the establishment of EUROSUR has reinforced the EBCGA's and Member States' capacity to respond to threats at the EU external borders.

However, the evaluation of EUROSUR[92] also identified shortcomings to the implementation of EUROSUR, which this Study has sought to help address by way of defining and assessing possible evolutions of EUROSUR (referred to as options). The Study also took place in the context of the drafting of the proposal for a new Regulation on the European Border and Coast Guard, which calls for an extension of the scope of EUROSUR and incorporates EUROSUR in the proposed European Border and Coast Guard Regulation (amending Regulation (EU) 2016/ 1624) as a necessary element of the functioning of the European Border and Coast Guard. The proposal incorporated all the options foreseen by this Study.

The results of the assessment show that all options for the possible evolution of EUROSUR have the potential to contribute to the general and specific objectives of the Regulation. Taken altogether, implementing all options across the period from 2019 to 2027 period have a cost of € 1.22 billion respectively € 396 million for EBCGA and € 698 million for the Member States as well as € 128 million for third countries. In turn, they are expected to deliver the following operational benefits:

- improved data quality, flow and speed of reporting of border control related data;
- improved interagency cooperation through exchange of data across geographies and sectors at EU and Member State level as well as with third countries;
- improved situational awareness at Member States' NCCs and across Europe;
- enhanced planning and operational coordination between NCCs in different Member States; and
- improved reaction capabilities from national border management authorities and EBCGA.

More specifically, the costs and benefits associated with each option and sub-option are:

- The additional cost of Option 1, an improved EUROSUR with the current scope ("Baseline plus") is estimated to have a cost of € 130 million over the period from 2019 to 2027. It delivers a few new capabilities in addition to the obligations of the existing EUROSUR Regulation such as the merging of JORA and EUROSUR, the implementation of reporting standards and quality assurance mechanisms, and automated information exchange gateways. The expected benefits from Option 1 relate to improvements in data quality and the flow and speed of reporting, thus resulting in an improved situational awareness at Member State NCCs across Europe and improvements in reaction capabilities.
- The additional cost of Option 2 "Compulsory inclusion of Border Crossing Points (BCPs)" is estimated to have a cost of € 179 million over the period from 2019 to 2027, when compared to Option 1. It covers the reporting of incidents emanating from checks at all BCPs including along air BCPs. The expected benefits of Option 2 relate to a much-improved situational awareness via an exhaustive coverage of BCPs thus also improving reaction capabilities across Europe.
- The additional cost of Option 3 "Compulsory inclusion of Air Border Surveillance" is estimated to have a cost of € 121 million over the period from 2019 to 2027, when compared to Option 2. It will allow for the capture and analysis of information from Air Border Surveillance systems. The expected additional benefits from Option 3 relate to improved interagency cooperation across all levels of governance.

[92] Summarised from the evaluation of EUROSUR (2017).

The Study also considered sub-options contributing to the implementation of some of the integrated border management components:

- Option 4.1 - Improved information exchange with third countries - will allow for information exchange on border surveillance matters, including specific situational pictures, with third countries directly between Member States or EBCGA. The additional cost compared to Option 3 is estimated to be have a cost of € 159 million across the period from 2019 to 2027. The nature and extent of the data exchanged and services available will vary from third country to third country. The expected benefits from Option 4.1 are the much-improved interagency cooperation with regional networks and third countries.
- Option 4.2 - Inclusion of secondary movements - will connect irregular migration data with intra-EU secondary movements data and use the intra-Schengen picture to reach conclusions on the situation at the EU external borders with an additional cost estimated to have a cost of € 23 million across the period from 2019 to 2027, compared to Option 3. Secondary movement data and related analyses will feature in the European and National Situational Pictures (ESP and NSP). The expected benefits from Option 4.2 are a more complete situational awareness via the inclusion of secondary data thus improving the analytical and reaction capabilities across Europe.
- Option 4.3 - Enhanced coordinated planning and conduction of border control operations - will coordinate Member State operational plans and operations other than in the context of joint operations, pilot projects and rapid interventions for an additional cost of € 93 million when compared to Option 3. The expected benefits of Option 4.3 are the enhancement of planning and operational coordination capabilities of NCCs across Member States and thus in their reaction capabilities.

The study also considered the deployment of an EU-Confidential communication network to support the EUROSUR systems. The deployment of such a communication network is expected to increase the cost of the options by € 33 million for Option 1; € 32 million for Option 2; € 32 million for Option 3; € 32 million for Option 4.1; € 33 million for Option 4.2; and € 32 million for Option 4.3.

Taken altogether, implementing all the options for the possible evolution of EUROSUR will cost an additional € 738 million across the 2019 to 2027 period when compared to Option 0 respectively € 245 million for EBCGA (or € 20 million a year excluding staff costs) and €365 million across the 2019 to 2027 period for the Member States (or €45 million a year) as well as € 113 million for third countries (€ 16 million a year).

Figure 10 and Figure 11 provide a summary of the total cost of each of the policy options (with and without an EU-Confidential communication network supporting the EUROSUR system), whilst Figure 12 and Figure 13 provide a summary of the additional costs associated with moving from the baseline option to the most ambitious options (with and without an EU-Confidential communication network supporting the EUROSUR system).

The operational benefits of the possible evolutions of EUROSUR vary according to the policy options under consideration. Overall, the benefits tend to be commensurate with the costs. Options from 1 to 4.3 all have the potential to contribute to the general and specific objectives of the Regulation.

*Figure 10. Summary of the total cost of each of the policy options (**not including** an EU-Confidential communication network)*

| Total cost | Option 0 | Option 1 | Option 2 | Option 3 | Option 4.1 | Option 4.2 | Option 4.3 | All options up to Option 4.3 (inclusive of option 4.1 and 4.2) |
|---|---|---|---|---|---|---|---|---|
| **EBCGA** | | | | | | | | |
| *Infrastructure* | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 |
| *Operating and IT equipment* | 0 | 11,700,000 | 21,850,000 | 41,950,000 | 53,185,000 | 41,950,000 | 46,950,000 | 58,185,000 |
| *Staff* | 43,624,000 | 51,614,400 | 60,042,450 | 65,100,900 | 73,533,579 | 66,785,700 | 105,289,700 | 115,407,179 |
| *Communication and maintenance* | 119,229,240 | 129,528,280 | 143,795,980 | 197,887,929 | 205,589,477 | 204,345,549 | 208,195,949 | 222,355,117 |
| *Total* | 163,053,240 | 193,042,680 | 225,888,430 | 305,138,829 | 332,508,055 | 313,281,249 | 360,635,649 | 396,147,295 |
| **Member States** | | | | | | | | |
| *Infrastructure* | 1,800,000 | 16,968,539 | 129,121,925 | 130,534,877 | 130,534,877 | 132,013,924 | 134,972,018 | 136,451,064 |
| *Operating and IT equipment* | 0 | 29,250,000 | 30,690,000 | 32,490,000 | 32,490,000 | 32,490,000 | 32,490,000 | 32,490,000 |
| *Staff* | 191,098,887 | 241,270,000 | 264,279,231 | 273,304,462 | 273,304,462 | 282,136,462 | 299,800,462 | 308,632,462 |
| *Communication and maintenance* | 161,144,649 | 166,466,010 | 175,539,853 | 205,437,727 | 209,130,647 | 209,855,292 | 211,917,501 | 220,027,986 |
| *Total* | 354,043,536 | 453,954,549 | 599,631,009 | 641,767,066 | 645,459,986 | 656,495,677 | 679,179,980 | 697,601,512 |
| **Third countries** | | | | | | | | |
| *Infrastructure* | 0 | 0 | 0 | 0 | 10,640,000 | 0 | 0 | 10,640,000 |
| *Operating and IT equipment* | 0 | 0 | 0 | 0 | 1,710,000 | 0 | 0 | 1,710,000 |
| *Staff* | 0 | 0 | 0 | 0 | 47,057,519 | 0 | 0 | 47,057,519 |
| *Communication and maintenance* | 0 | 0 | 0 | 0 | 68,868,752 | 0 | 0 | 68,868,752 |
| *Total* | 0 | 0 | 0 | 0 | 128,276,271 | 0 | 0 | 128,276,271 |
| | | | | | | | | |
| **Overall Total** | **517,096,776** | **646,997,229** | **825,519,439** | **946,905,895** | **1,106,244,313** | **969,776,926** | **1,039,815,629** | **1,222,025,079** |
| *Total excluding third countries* | 517,096,776 | 646,997,229 | 825,519,439 | 946,905,895 | 977,968,041 | 969,776,926 | 1,039,815,629 | *1,093,748,807* |
| | | | | | | | | |
| *Overall cost excluding Copernicus costs* | 437,096,776 | 566,997,229 | 745,519,439 | 866,905,895 | 1,026,244,313 | 889,776,926 | 959,815,629 | 1,142,025,079 |

*Figure 11. Summary of the total cost of each of the policy options (**including** an EU-Confidential communication network)*

| Total cost | Option 0 | Option 1.1 | Option 2.1 | Option 3.1 | Option 4.11 | Option 4.21 | Option 4.31 | All options up to Option 4.31 (inclusive of option 4.11 and 4.21) |
|---|---|---|---|---|---|---|---|---|
| **EBCGA** | | | | | | | | |
| *Infrastructure* | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 |
| *Operating and IT equipment* | 0 | 11,700,000 | 21,850,000 | 41,950,000 | 53,185,000 | 41,950,000 | 46,950,000 | 58,185,000 |
| *Staff* | 43,624,000 | 62,974,400 | 71,402,450 | 76,460,900 | 84,893,579 | 78,145,700 | 116,649,700 | 126,767,179 |
| *Communication and maintenance* | 119,229,240 | 130,664,280 | 144,085,365 | 198,177,314 | 205,878,862 | 204,634,934 | 208,485,334 | 222,644,502 |
| *Total* | 163,053,240 | 205,538,680 | 237,537,815 | 316,788,214 | 344,157,440 | 324,930,634 | 372,285,034 | 407,796,680 |
| **Member States** | | | | | | | | |
| *Infrastructure* | 1,800,000 | 25,134,641 | 137,288,027 | 138,700,979 | 138,700,979 | 141,659,072 | 143,138,119 | 146,096,213 |
| *Operating and IT equipment* | 0 | 33,210,000 | 34,650,000 | 36,450,000 | 36,450,000 | 36,450,000 | 36,450,000 | 36,450,000 |
| *Staff* | 191,098,887 | 245,779,120 | 268,788,351 | 277,813,582 | 277,813,582 | 286,645,582 | 304,309,582 | 313,141,582 |
| *Communication and maintenance* | 161,144,649 | 169,975,472 | 179,049,315 | 208,947,189 | 212,640,109 | 213,512,659 | 215,426,963 | 223,685,353 |
| *Total* | 354,043,536 | 474,099,233 | 619,775,693 | 661,911,750 | 665,604,670 | 678,267,313 | 699,324,664 | 719,373,147 |
| **Third countries** | | | | | | | | |
| *Infrastructure* | 0 | 0 | 0 | 0 | 10,640,000 | 0 | 0 | 10,640,000 |
| *Operating and IT equipment* | 0 | 0 | 0 | 0 | 1,710,000 | 0 | 0 | 1,710,000 |
| *Staff* | 0 | 0 | 0 | 0 | 47,057,519 | 0 | 0 | 47,057,519 |
| *Communication and maintenance* | 0 | 0 | 0 | 0 | 68,868,752 | 0 | 0 | 68,868,752 |
| *Total* | 0 | 0 | 0 | 0 | 128,276,271 | 0 | 0 | 128,276,271 |
| | | | | | | | | |
| **Overall Total** | **517,096,776** | **679,637,913** | **857,313,508** | **978,699,964** | **1,138,038,381** | **1,003,197,947** | **1,071,609,698** | **1,255,446,099** |
| *Total excluding third countries* | 517,096,776 | 679,637,913 | 857,313,508 | 978,699,964 | 1,009,762,110 | 1,003,197,947 | 1,071,609,698 | *1,127,169,828* |
| | | | | | | | | |
| *Overall cost excluding Copernicus costs* | 437,096,776 | 599,637,913 | 777,313,508 | 898,699,964 | 1,058,038,381 | 923,197,947 | 991,609,698 | 1,175,446,099 |

*Figure 12. Additional costs moving from the baseline option to the most ambitious options (**not including** an EU-Confidential communication network)*

| | From option 0 to: | From option 1 to: | From option 2 to: | From option 3 to: | From option 3 to: | From option 3 to: | From option 0 to: |
|---|---|---|---|---|---|---|---|
| **Additional cost** | **Option 1** | **Option 2** | **Option 3** | **Option 4.1** | **Option 4.2** | **Option 4.3** | **All Options inclusive of Option 4.3** |
| **EBCGA** | | | | | | | |
| *Infrastructure* | 0 | 0 | 0 | 0 | 0 | 0 | |
| *Operating and IT equipment* | 11,700,000 | 10,150,000 | 20,100,000 | 11,235,000 | 0 | 5,000,000 | 58,185,000 |
| *Staff* | 7,990,400 | 8,428,050 | 5,058,450 | 8,432,679 | 1,684,800 | 40,188,800 | 71,783,179 |
| *Communication and maintenance* | 10,299,040 | 14,267,700 | 54,091,949 | 7,701,548 | 6,457,620 | 10,308,020 | 103,125,877 |
| *Total* | 29,989,440 | 32,845,750 | 79,250,399 | 27,369,226 | 8,142,420 | 55,496,820 | 233,094,055 |
| **Member States** | | | | | | | |
| *Infrastructure* | 15,168,539 | 112,153,386 | 1,412,952 | 0 | 1,479,047 | 4,437,141 | 134,651,064 |
| *Operating and IT equipment* | 29,250,000 | 1,440,000 | 1,800,000 | 0 | 0 | 0 | 32,490,000 |
| *Staff* | 50,171,113 | 23,009,231 | 9,025,231 | 0 | 8,832,000 | 26,496,000 | 117,533,574 |
| *Communication and maintenance* | 5,321,361 | 9,073,843 | 29,897,874 | 3,692,920 | 4,417,565 | 6,479,774 | 58,883,337 |
| *Total* | 99,911,013 | 145,676,459 | 42,136,057 | 3,692,920 | 14,728,612 | 37,412,915 | 343,557,976 |
| **Third countries** | | | | | | | |
| *Infrastructure* | 0 | 0 | 0 | 10,640,000 | 0 | 0 | 10,640,000 |
| *Operating and IT equipment* | 0 | 0 | 0 | 1,710,000 | 0 | 0 | 1,710,000 |
| *Staff* | 0 | 0 | 0 | 47,057,519 | 0 | 0 | 47,057,519 |
| *Communication and maintenance* | 0 | 0 | 0 | 68,868,752 | 0 | 0 | 68,868,752 |
| *Total* | 0 | 0 | 0 | 128,276,271 | 0 | 0 | 128,276,271 |
| **Total additional cost** | **129,900,453** | **178,522,209** | **121,386,456** | **159,338,418** | **22,871,032** | **92,909,735** | **704,928,303** |
| *Total excluding third countries* | 129,900,453 | 178,522,209 | 121,386,456 | 31,062,146 | 22,871,032 | 92,909,735 | 576,652,031 |

*Figure 13. Additional costs moving from the baseline option to the most ambitious options (**including** an EU-Confidential communication network)*

| | From option 0 to: | From option 1.1 to: | From option 2.1 to: | From option 3.1 to: | From option 3.1 to: | From option 3.1 to: | From option 0 to: |
|---|---|---|---|---|---|---|---|
| **Additional cost** | **Option 1.1** | **Option 2.1** | **Option 3.1** | **Option 4.11** | **Option 4.21** | **Option 4.31** | **All Options inclusive of Option 4.31** |
| **EBCGA** | | | | | | | |
| *Infrastructure* | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Operating and IT equipment* | 11,700,000 | 10,150,000 | 20,100,000 | 11,235,000 | 0 | 5,000,000 | 58,185,000 |
| *Staff* | 19,350,400 | 8,428,050 | 5,058,450 | 8,432,679 | 1,684,800 | 40,188,800 | 83,143,179 |
| *Communication and maintenance* | 11,435,040 | 13,421,085 | 54,091,949 | 7,701,548 | 6,457,620 | 10,308,020 | 103,415,262 |
| *Total* | 42,485,440 | 31,999,135 | 79,250,399 | 27,369,226 | 8,142,420 | 55,496,820 | 244,743,440 |
| **Member States** | | | | | | | |
| *Infrastructure* | 23,334,641 | 112,153,386 | 1,412,952 | 0 | 2,958,094 | 4,437,141 | 144,296,213 |
| *Operating and IT equipment* | 33,210,000 | 1,440,000 | 1,800,000 | 0 | 0 | 0 | 36,450,000 |
| *Staff* | 54,680,233 | 23,009,231 | 9,025,231 | 0 | 8,832,000 | 26,496,000 | 122,042,694 |
| *Communication and maintenance* | 8,830,823 | 9,073,843 | 29,897,874 | 3,692,920 | 4,565,469 | 6,479,774 | 62,540,704 |
| *Total* | 120,055,697 | 145,676,459 | 42,136,057 | 3,692,920 | 16,355,563 | 37,412,915 | 365,329,611 |
| **Third countries** | | | | | | | |
| *Infrastructure* | 0 | 0 | 0 | 10,640,000 | 0 | 0 | 10,640,000 |
| *Operating and IT equipment* | 0 | 0 | 0 | 1,710,000 | 0 | 0 | 1,710,000 |
| *Staff* | 0 | 0 | 0 | 47,057,519 | 0 | 0 | 47,057,519 |
| *Communication and maintenance* | 0 | 0 | 0 | 68,868,752 | 0 | 0 | 68,868,752 |
| *Total* | 0 | 0 | 0 | 128,276,271 | 0 | 0 | 128,276,271 |
| **Total additional cost** | **162,541,137** | **177,675,594** | **121,386,456** | **159,338,418** | **24,497,983** | **92,909,735** | **738,349,323** |
| *Total excluding third countries* | 162,541,137 | 177,675,594 | 121,386,456 | 31,062,146 | 24,497,983 | 92,909,735 | 610,073,052 |

Figure 14 summarises the additional results that each Option delivers on top of the preceding Option and this on the seven categories of benefits, presented in the study.

*Figure 14. Summary of additional benefits delivered by each of the Options*

| Benefit outputs | Option 1 | Option 1.1 | Option 2 | Option 3 | Option 4.1 | Option 4.2 | Option 4.3 |
|---|---|---|---|---|---|---|---|
| Improvement in data quality, flow and speed of reporting | High | Low | High | Low | Medium | Medium | Low |
| Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL) | No effect | No effect | Low | Low | Low | Low | No effect |
| Improved interagency cooperation through exchange of data across geographies and sectors (Member State level) | Low | Low | Low | Low | Low | Low | Medium |
| Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries) | No effect | No effect | No effect | No effect | High | No effect | No effect |
| Improved situational awareness at Member States' NCCs and across Europe | Low | Low | High | Low | Low | Medium | Low |
| Enhanced planning and operational coordination between NCCs in different Member States | Low | Low | Low | Low | Low/ Medium | Low | High |
| Improved reaction capabilities from Border Guard Agencies and EBCGA | No effect | No effect | Low | Low | Low | Low | Medium |

# Annex 1 Glossary of terms

This annex contains a glossary and provides for definitions relating to the main concepts presented and analysed in the present study. Definitions for the entries in the glossary mainly come from a DG HOME Glossary[93] and the European Migration Network (EMN) Glossary[94], both of which refer primarily to specific EU legal instruments in the field of home affairs, as specified. When such definitions appear in EU legal instruments, ICF elaborated the definitions based in part on those instruments and/or on expertise.

**Border control**

The activity carried out at a border, in accordance with and for the purposes of Regulation 562/2006, exclusively in response to an intention to cross or the act of crossing that border, regardless of any other consideration, consisting of border checks and border surveillance. (Article 2 (9) of Regulation 562/2006.

**Assets**

Assets used by border management authorities to perform border control missions. This cover a wide range of aircraft, vessels and vehicles. (ICF elaboration).

**Border surveillance**

The surveillance of borders between border crossing points and the surveillance of border crossing points outs ide the fixed opening hours, to prevent persons from circumventing border checks. (Article 2(11) of Regulation (EC) No 296/2008).

**Border crossing points**

Any crossing point authorised by the competent authorities for crossing external borders. (Article 2(8) of Regulation (EC) No 296/2008

**Border sections**

Each Member State divided its external land and sea borders into border sections, and notified them to the Agency (Article 14 of Regulation 1052/2013). The Agency, based on its risk analysis and in agreement with the Member State concerned, attributed to each identified border section an impact level (Article 15 of Regulation 1052/2013). The Member States are obliged to ensure that the surveillance activities carried out at the external border sections correspond to the attributed impact levels (Article 16 of Regulation 1052/2013). This study uses the concept of external air borders. (ICF Elaboration based on Regulation 1052/2013).

**(Confidential) EUROSUR Communication Network**

A communication network which provides communication and analytical tools and allow for the exchange of non-classified sensitive and classified information in a secure manner and in near-real-time with, and among, the national coordination centres. (ICF Elaboration based on Regulation 1052/2013).

The European Border and Coast Guard comprises the European Border and Coast Guard Agency ('the Agency') and national authorities which are responsible for border management, including coast guards to the extent that they carry out border control tasks. As such it relies upon the common use of information, capabilities and systems at national level and the response of the Agency at Union level. (ICF elaboration on the basis of preamble 9 of Regulation (EU) 2016/1624).

[93] https://ec.europa.eu/home-affairs/e-library/glossary/q_en

[94] https://ec.europa.eu/home-affairs/what-we-do/networks/european_migration_network/glossary_en

**EBCGA**

The European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union, commonly referred to as Frontex, was established by Council Regulation (EC) No 2007/2004 (3). Since taking up its responsibilities on 1 May 2005, it assists Member States with implementing the operational aspects of external border management through joint operations and rapid border interventions, risk analysis, information exchange, relations with third countries and the return of returnees. The EBCGA is tasked to provide the necessary assistance for the development and operation of the EUROSUR. (ICF elaboration on the basis of preamble 9 of Regulation (EU) 2016/1624).

**EUROSUR**

The European Border Surveillance System establishes a common framework for the exchange of information and for the cooperation between EU States and EBCGA to improve situational awareness and to increase reaction capability at the external borders for detecting, preventing and combating irregular immigration and cross-border crime and contributing to ensuring the protection and saving the lives of migrants (ICF elaboration on the basis of Regulation (EU) No 1052/2013).

**EUROSUR fusion services**

The EUROSUR Fusion Services are provided by EBCGA and supply the Member States and the Agency with surveillance services on the external borders and the pre-frontier area based on a combination of surveillance activities and information sources, such as satellite imagery, ship reporting services and weather and environmental services (COM(2018) 632 final).

**European integrated border management**

Integrated border management (IBM) contributes to both migration and security policies of the Union and primarily aims to:

- manage the crossing of the external borders efficiently;
- address migratory challenges and potential future threats;
- contribute to addressing serious crime with a cross-border dimension related to external borders;
- ensure high level of internal security;
- respect fundamental rights; and
- provide safeguards the free movement of persons within the Union.

The implementation of IBM is based on a four-tier access control model, that comprises measures in third countries (such as common visa policy), measures with neighbouring third countries, border control measures at the external borders, risk analysis and measures within the Schengen area and return. Three layers can be identified in the design of the EU IBM Strategy: policy level where EU institutions are developing a European Integrated Border Management Strategy; operational level where EBCGA is developing a Technical and Operational IBM Strategy; and Member State level where Member States will define and adopt their National IBM Strategies. (EUROSUR Industry day workshop – synopsis report - 2018).

**Information gateway**

A mechanism ensuring the quality of the information exchanged between the Member States and the EBCGA via the standardisation, automation, assurance and quality control of the data and information transmitted (ICF elaboration).

**Irregular migrant**

Non-EU national present on the territory of a Schengen State who does not fulfil, or no longer fulfils, the conditions of entry as set out in the Schengen Borders Code

(Regulation 562/2006), or other conditions for entry, stay or residence in an EU State. (ICF elaboration on the basis of Regulation (EC) No 296/2008)

**Joint operations**

EBCGA provides technical and operational assistance to Member States and non-EU countries in support of operations that may arise during border surveillance operations. Joint operations take place at three types of border – sea, land and air. Each operation is based on risk analysis and uniquely tailored to the circumstances identified by the Agency in one of its risk analysis products. (ICF elaboration).

**JORA**

Joint Operation Risk Analysis System. (EUROSUR Evaluation).

**Latency of data**

Time elapsed between the occurrence of the new information and the entry of that information (by layer – event, operational and analysis) in the EUROSUR system. (ICF Elaboration)

**National coordination centres**

Article 5 of the Regulation 1052/2013 (the "EUROSUR" Regulation) states that *each Member State shall designate, operate and maintain a national coordination centre which shall coordinate, and exchange information among, all authorities with a responsibility for external border surveillance at national level, as well as with the other national coordination centres and the Agency.*

**Reaction capabilities**

The ability to perform actions aimed at countering illegal cross-border activities at, along or in the proximity of, the external borders, including the means and timelines to react adequately. 2018/0330 (COD)

**Re-entry rate**

Indicator measured in terms of the proportion of incorrect or incomplete data entries divided by the number of data entered into the EUROSUR system. Re-entry rate is taken as a proxy for measuring data quality in this Study. (ICF elaboration).

**Remotely Piloted Aviation Systems**

Remotely Piloted Aviation Systems (RPAS), are aircrafts that are automated and operate without a pilot on board. The aircraft is controlled by a human pilot from a distant location. This means that there is always a pilot in charge – even if remotely. These are the only types of drones that can be authorised currently, and under the new framework, for use at the EU external air border (ICF Elaboration on the basis of http://europa.eu/rapid/press-release_MEMO-14-259_en.htm)

**Planning and conduct of border control operations**

Preparation activities involved in the operational planning of border control operations as well as the joint implementation by Member States and the Agency of the operational plans resulting from such activities. (ICF elaboration).

**Member States in the context of this study**

Member States covers EU Member States participating in EUROSUR: Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Germany, Estonia, Greece, Spain, France, Italy, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovakia, Slovenia, Finland and Sweden. Ireland, and the United Kingdom) are not part of EUROSUR. Schengen Associated Countries Iceland, Liechtenstein, Norway and Switzerland are not EU States are part of EUROSUR (ICF Elaboration).

**Secondary movements**

The movement of migrants, including refugees and asylum seekers, who for different reasons move from the country in which they first arrived to seek protection or permanent resettlement elsewhere. (Derived by EMN from UNHCR Executive Committee (ExCom): Conclusion No 58 (1989).

**Situational awareness**

In the context of border surveillance, the ability to monitor, detect, identify, track and understand irregular cross-border activities to find reasoned grounds for reaction measures on the basis of combining new information with existing knowledge, and to be better able to reduce the loss of lives of migrants at, along or in the proximity of, the external borders. (DG Article 3(b) of Regulation (EU) No 1052/2013).

**Situational picture**

A graphical interface to present near-real-time data and information received from different authorities, sensors, platforms and other sources, which is shared across communication and information channels with other authorities in order to achieve situational awareness and support the reaction capability along the external borders and the pre-frontier area. (Article 3(d) of Regulation (EU) No 1052/2013).

**Third country cooperation**

Article 18 of Regulation 1052/2013 sets out the principles of cooperation of the Agency with third parties, other Union institutions, bodies, offices and agencies, and international organisations, while Article 20 of Regulation 1052/2013 frames the exchange of information with neighbouring third countries, with the NCCs being the contact points for such cooperation (Article 18 of Regulation 1052/2013).

# Annex 2 Detailed cost calculations

This annex describes the calculations in the cost model, showing how they have been calculated and key assumptions used in the calculations.

The costs included in each category are presented in the sections below, along with a description of how the costs were calculated. The options build on one another – the total cost for option 2 includes all the costs association with option 1, plus the extra costs associated with option 2. All the option 4 sub options (4.1, 4.2, 4.3) build on option 3 (the total costs of option 3 plus the additional costs in each of the sub-options separately).

## A2.1 Tables in Excel file cover sheet

### A2.1.1 Total financial cost table

The total financial cost figures show the nominal value of each policy option over the period 2020 to 2027. This sums the financial cost in each year to provide the total financial costs over the period.

### A2.1.2 Average annual cost

The average annual cost tables present the total cost over an eight-year period divided by eight, to give the average monetary cost of each option. This approach has been undertaken as not all costs are incurred every year, so the annual cost is different in different years.

The level of total expenditure can be calculated from this table. This can be calculated by multiplying the monetary values in the table by the number of years covered by the analysis (i.e. eight).

### A2.1.3 Human resource cost

The human resource cost presents the number of full-time equivalents (FTEs) required in each option, and the annual staffing cost for each option. They sum the cost calculations by option wherever staff costs are incurred.

## A2.2 Option 0 – Baseline

### A2.2.1 Infrastructure

#### A2.2.1.1 Replacement of building security equipment

The building security equipment will need to be replaced every five years. This is assumed to happen in 2020 and 2025.

The total cost of replacing building security equipment at existing NCCs and at EBCGA is assumed to be (on the basis of the past technical and financial impact assessment of EUROSUR):

- €30,000 per NCC; and
- €100,000 for the ECBGA.

The cost per NCC is multiplied by the total number of NCCs (30) to estimate the total cost of replacing NCC security systems in each year.

### A2.2.2 Operating and IT equipment

No operating and IT equipment costs were identified.

### A2.2.3 Staff costs

#### A2.2.3.1 Existing staff costs

The cost of providing staff to implement EUROSUR in line with the existing legislation was estimated in the previous impact assessment of EUROSUR and information from Eurostat on GDP deflator[95] to update the labour costs as reported in the impact assessment. The staff cost is incurred every year, and is for NCCs and the EBCGA. Member State's staff cost have been derived from the last technical and financial impact assessment of EUROSUR and actualised. EBCGA staff cost have been derived from EBCGA data on the basis of core staff profiles (e.g. analyst, planning officers, IT staff, etc.). The annual staff cost to provide these services was estimated to be:

- an average of 35 staff are required at each NCCs to fully deliver EUROSUR. This has a cost of €824,000 per NCC per year; and
- the EBCGA has an annual staff cost of €3.9 million to deliver services in line with the current legislation.

The cost per NCC is multiplied by the total number of NCCs (30) to estimate the total cost of staffing at an NCC in each year.

An additional 15% has been added to the labour costs for NCC staff. This is to cover the costs associated with providing a desk, IT systems and other on-costs associated with the member of staff being able to undertake their job. The 15% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff.

**This cost has been multiplied by the degree to which each Member State complies with the existing legislation, to estimate the cost of labour if EUROSUR continued to be delivered as it is currently.** A compliance score was assigned to each Member State on the basis of the state of play of implementation of the Regulation 2013/1052 across Member States and Schengen Associated States. Therefore, the cost per NCC varies as the level of compliance is different in each Member State, and the average cost (including the 15% mark-up) is €739,000 per NCC per year.

There is also the existing staff cost relating to the provision of EUROSUR Fusion Services. It is estimated that providing EUROSUR Fusion Services under the current legislation requires 10 FTE. This assumption is based on information provided by the EBCGA.

The staff cost of providing EUROSUR Fusion Services has been estimated by multiplying the number of staff by an average labour cost. The average labour cost for EUROSUR Fusion services staff is assumed to be €105,300. This is based on information provided by DG HOME.

#### A2.2.3.2 Existing staff to analyse BCP data

Some Member States already collect and analyse BCP data in EUROSUR. Where a Member State NCC does this, it is estimated that some additional staff are in place to analyse the data. However, these Member States do not always collect and analyse all BCP data for all border types (land, sea and air borders). For the baseline, it has been assumed that these Member States collect data from land and sea BCPs, but not airports. This assumption was made in the absence of data from the EUROSUR evaluation and or EBCGA feedback. The assumption is based on a reasoned argument

[95] See https://ec.europa.eu/eurostat/data/database?node_code=teina110. When implied to 2011 prices, the inflation between 2011 and 2018 show a 10% increase. A 10% uplift has then been applied to 2011 estimates.

that BCP data across all border types and Member States collecting BCP data may or may not be using it. To account for the diversity of practices and the non-mandatory collection of BCP data from air border from the EUROSUR Regulation, the assumption is that air border data is not collected in any Member State for Option 0, but sea and land border data is collected systematically in those Member States collecting BCP data.

It is estimated that, on average, each NCC requires an additional **0.055 FTE per BCP** to analyse the BCP data. This is an assumption based on an analysis of the existing number of staff at NCCs and whether the NCC analyses BCP data (see A2.2.3.1 for more details of the assumption). The BCPs have been weighted, as different BCPs will produce different volumes of data to analyse. BCPs that are open 24/7 have a weight of 1; BCPs open only during the daytime have a weight of 0.75, other airports and ports (on-demand) have a weight of 0.5, and all unspecified BCPs have a weight of 0.1. The number of staff analysing BCP data was multiplied by the labour cost for an analyst (€35,000) and a 15% mark-up. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job role. The 15% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff.

#### A2.2.3.3 Existing staff to analyse Air Border Surveillance data

Some Member States already collect and analyse Air Border Surveillance data in EUROSUR. Where a Member State NCC does this, it is estimated that some additional staff are in place to analyse the data.

It is estimated that, on average, each NCC requires an additional **0.00006 FTE per inbound flight to the EU and 0.0002 FTE per km of external border** to analyse the Air Border Surveillance data. This is an assumption based on an analysis of the existing number of staff at NCCs and whether the NCC analyses Air Border Surveillance data (see A2.2.3.1 for more details of the assumption). The number of staff analysing Air Border Surveillance data was multiplied by the labour cost for an analyst (€35,000) and a 15% mark-up. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job role (except the cost of occupying premises which are counted in the infrastructure costs). The 15% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff.

#### A2.2.3.4 Training

The EBCGA currently provides training to staff who work in EUROSUR in the NCCs. This training is estimated to cost €0.5 million per year. This is a cost to the EBCGA, and is an annual cost.

### A2.2.4 Communication and maintenance

#### A2.2.4.1 Communications network

To deliver EUROSUR in line with the legislation, both the EBCGA and Member State NCCs will incur a communications network cost. This is the cost of providing internet access, telecommunications etc. so that information can be shared. The estimated cost of the communications network is:

- €175,000 per NCC which currently provides an EU-restricted network;
- €183,750 per NCC which currently provides a network at EU-Confidential or above (105% of the cost of an EU-restricted network); and
- €2 million for the ECBGA.

The cost per NCC is multiplied by the total number of NCCs (30) to estimate the total cost of the telecommunications network. This is an annual cost, incurred each year.

These costs are based on values taken from the previous Impact Assessment of EUROSUR, where Member States and the EBCGA provided estimates of the cost items required to run EUROSUR.

#### A2.2.4.2 Existing cost of decision support applications at the Member State NCC and EBCG

The EBCGA currently uses decision support tools and applications to deliver EUROSUR in line with the current legislation. This is estimated to cost €3.75 million per year overall for both EBCGA and Member States. This is based on information provided by the EBCGA. It has been assumed that EBCGA directly supports 35% of these costs and that Member States support 65% of these costs.

The Member State NCCs also use their own decision support applications under the existing legislation using EUROSUR data. This is estimated to cost €200,000 per NCC (30). This is based on the estimated value from the previous impact assessment of EUROSUR. This value has been multiplied by the degree to which each Member State complies with the existing legislation, to estimate the cost of labour if EUROSUR continued to be delivered as it is currently. This is an annual cost, incurred every year from 2020 to 2027.

#### A2.2.4.3 Existing costs of EUROSUR Fusion services

EUROSUR Fusion Services are provided via decision support applications as part of the operational support to the EBCGA and NCCs. These are estimated to cost €10 million per year for Copernicus services, and €3.4 million per year for other Fusion Services delivered via EBCGA. This is based on desk research of EBCGA spending. This is an annual cost, incurred each year. For the Fusion Services delivered by EBCGA, it has been assumed that 75% of this cost is borne by the EBCGA, and the remaining 25% of the cost is for the Member States (which utilise the information provided by EUROSUR Fusion Services via their decision support applications).

#### A2.2.4.4 Maintenance

The maintenance cost is assumed to be 10% of total operational spend for the option. This estimate is based on previous impact assessments undertaken by ICF which examined the cost of ICT systems.

## A2.3 Option 1 - Baseline Plus

### A2.3.1 Infrastructure

#### A2.3.1.1 Accommodation for additional staff

The rise in the number of staff required to implement Option 1 (see section A1.3.3) requires new office space to be purchased and/or leased. This is assumed to take place from 2020 onwards.

The total cost of increasing the square metres of the NCC premises to accommodate new staff is assumed to be:

- Estimated replacement cost of NCC building (calculated by amortisation of a new NCC over 20 years) X percentage increase in staff.

The cost of an NCC building is €5,000,000, the annual amortisation cost is €500,000 (assumed to be depreciated over 20 years) and the percentage increase in staff from option 0 to option 1 is 25%. Hence the cost of accommodating new staff is €1.9 million per year.

#### A2.3.1.2 Replacement of building security equipment (same as Option 0)

The building security equipment will also need to be replaced every five years. This is assumed to happen in 2020 and 2025.

The total cost of replacing building security equipment at existing NCCs and at EBCGA is assumed to be:

- €30,000 per NCC; and
- €100,000 for the ECBGA.

The cost per NCC is multiplied by the total number of NCCs (30) to estimate the total cost of replacing NCC security systems in each year. Staff costs for the Member States were assumed to be in line with the last Technical and Financial Impact Assessment of EUROSUR and EBCGA staff cost by profiles were derived from EBCGA.

#### A2.3.1.3 Upgrading network to EU-Confidential level (option 1.1)

To upgrade the EUROSUR system to EU-Confidential level, NCCs will have to upgrade their communication network to EU-Confidential level if they are not already operating at that level. The cost of upgrading the communication network in each NCC to EU-Confidential level is estimated to be €100,000 (assumed to be in line with the last Technical and Financial Impact Assessment of EUROSUR). This has been multiplied by the number of Member States that need to upgrade their network to estimate the total cost. The cost is assumed to be incurred in 2020, and is a cost for Member States.

#### A2.3.1.4 Upgrading NCC building to support EU-Confidential network (option 1.1)

To support an EU-Confidential network, the security at each NCC will need to be improved. This has been estimated to cost €272,000 per NCC. This is based on an estimate that it would cost €50 per square metre of office space to improve the security of the building, and that each NCC is approximately 4,000 square metres. The cost is assumed to be incurred in 2020, and is a cost for Member States.

### A2.3.2 Operating and IT equipment

#### A2.3.2.1 EUROSUR developing information exchange gateways

The EBCGA may need to develop a technical solution to develop the information exchange gateways, which will allow the control and enforcement of the quality of the information exchanged within EUROSUR. This cost is estimated to be € 11.7 million and applies only to the EBCGA. It represents about 40% of the cost that Member States will have to invest to develop their own solutions. The cost is assumed to be incurred in 2020. The estimated cost is based on information provided by the EBCGA.

#### A2.3.2.2 Member States' NCCs complying with data standards, harmonisation of reporting procedures as well as investing in the definition and automation of data exchange via the set-up of technical interfaces to foster machine-to-machine interactions

To comply with data standards, reporting procedures and technical interfaces for automated data exchange, the Member State NCC's will have to develop technical solutions scalable to enable national authorities with responsibility for border control to exchange data with the NCC close to real time whilst minimising the need for human interactions.

This cost is expected to vary across Member States according to the number of national authorities exchanging data with their national NCC, the type of data shared, their alignment with data standards and reporting procedures promoted by EBCGA and their degree of automation as well as their governance arrangements (e.g. ownership of the data collected, reporting timeframe, delivery of information services). This cost is assumed to be around €975,000 per Member State. This cost is assumed to be incurred in 2020. These costs are borne by Member States only and are assumed to be a maximum.

#### A2.3.2.3 New IT equipment for EU-Confidential network (option 1.1)

In addition to the additional communication infrastructure and network costs detailed under section A2.3.1.3, upgrading the EUROSUR system to EU-Confidential will involve replacing IT hardware for staff with new equipment that supports EU-Confidentiality. It is assumed that all staff will require new IT hardware. The cost of new IT hardware is estimated to be €5,000 per person. This cost is based on information taken from the previous impact assessment of EUROSUR. This has been multiplied by the number of staff in NCCs that do not already support an EU-Confidential or higher network. The cost is assumed to be incurred in 2020, and is a cost for Member States.

### A2.3.3 Staff costs

#### A2.3.3.1 Existing staff costs

The cost of providing staff to implement EUROSUR in line with the existing legislation was estimated in the previous impact assessment of EUROSUR and information was sourced from Eurostat to update the labour costs. The staff cost is incurred every year and is for NCCs and the EBCGA. The annual staff cost to provide these services was estimated as follows:

- an average of 35 staff are required at each NCC to fully deliver EUROSUR. This has a cost of €824,000 per NCC per year; and
- the EBCGA has an annual staff cost of €3.9 million to deliver services in line with the current legislation.

Staff costs for the Member States were assumed to be in line with the last Technical and Financial Impact Assessment of EUROSUR and EBCGA staff cost by profiles were derived from EBCGA's input.

The cost per NCC is multiplied by the total number of NCCs (30) to estimate the total cost of staffing at an NCC in each year.

An additional 15% has been added to the labour costs for NCC staff. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job. The 15% is based on the ratio of labour costs to desk / IT costs for EBCGA staff.

There is also the existing staff cost relating to the provision of EUROSUR Fusion Services. It is estimated that providing EUROSUR Fusion Services under the current legislation requires 10 FTE. This assumption is based on information provided by the EBCGA.

The staff cost of providing EUROSUR Fusion Services has been estimated by multiplying the number of staff by an average labour cost. The average labour cost for EUROSUR Fusion services staff is assumed to be €1,005,300. This is based on information provided by DG HOME.

#### A2.3.3.2 Additional staff for information exchange gateways

Option 1 also requires additional staff to operate the information exchange gateways, introduced at the EBCGA. It is estimated that 4 FTEs will be required to run the information exchange gateways. It is assumed that the labour cost for each FTE is €105,300. This labour cost is based on information from the previous impact assessment of EUROSUR and information from Eurostat; the information for the number of gateway staff comes from information provided by the EBCGA.

The staff cost for the information exchange gateways is calculated by multiplying the additional number of staff (4) by the average labour cost. This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the EBCGA.

Note that the corresponding costs at national level for ensuring the compliance with data standards, ensuring automated data and information exchange is assumed to be cost neutral with regard to Member State staff. The additional staff costs are likely to be offset by NCC staff at national level having to re-enter data, eliminate duplicates and or cleaning datasets prior to the analysis.

#### A2.3.3.3 Additional security staff (option 1.1)

Upgrading the EUROSUR system to EU Confidential will involve additional security staff to support EU-Confidentiality. It has been estimated that each NCC which does not already support an EU Confidential network will require 1 additional security staff member. The average cost of a security staff member is estimated to be €21,120. This has been multiplied by the additional number of staff to estimate the total cost of the extra security staff. This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the Member States.

An additional 15% has been added to the labour costs. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job role. The 15% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff.

#### A2.3.3.4 Existing staff to analyse BCP data (same as Option 0)

Some Member States already collect and analyse BCP data in EUROSUR. Where a Member State NCC does this, it is estimated that some additional staff are in place to analyse the data. However, these Member States do not always collect and analyse all

BCP data. For the baseline, it has been assumed that these Member States collect data from land and sea BCPs, but not airports.

It is estimated that on average, each NCC requires an additional **0.055 FTE per BCP** to analyse the BCP data. This is an assumption based on an analysis of the existing number of staff at NCCs and whether the NCC analyses BCP data (see A2.3.3.1) for more details of the assumption). The BCPs have been weighted, as different BCPs will produce different volumes of data to analyse. BCPs that are open 24/7 have a weight of 1; BCPs open only in daytime have a weight of 0.75; other airports and ports (on-demand) have a weight of 0.5, and all unspecified BCPs have a weight of 0.1.

#### A2.3.3.5 Existing staff to analyse Air Border Surveillance data (same as Option 0)

Some Member States already collect and analyse Air Border Surveillance data in EUROSUR. Where a Member State NCC does this, it is estimated that some additional staff are in place to analyse the data.

It is estimated that on average, each NCC requires an additional **0.00006 FTE per inbound flight to the EU and 0.0002** FTE per km of external border to analyse the air border surveillance data. This is an assumption based on an analysis of the existing number of staff at NCCs and whether the NCC analyses air border surveillance data (see A2.3.3.1 and A2.3.3.4 for more details of the assumption). The number of staff analysing air border surveillance data was multiplied by the labour cost for an analyst (€35,000) and a 15% mark-up. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job role. The 15% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff.

#### A2.3.3.6 Additional staff costs for EBCGA for secure network (option 1.1)

Option 1, with an EU-Confidential network, will also require additional staffing in the EBCGA. These staff are:

- Staff to ensure a consistent data flow and assure data quality within the EUROSUR system (8 staff members, cost estimated to €72,200 per staff member);
- Staff members to ensure cyber security (8 staff members, cost estimated to be €80,100 per staff member); and
- System security managers / encryption managers (8 staff members, cost estimated to be €105,300 per staff member).

The estimated staff cost for the additional staff is calculated by multiplying the labour cost by the number of additional FTEs. This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the EBCGA.

#### A2.3.3.7 Training (same as option 0)

The EBCGA currently provides training to staff who work in EUROSUR in the NCCs. This training is estimated to cost €0.5 million per year. This is a cost to the EBCGA, and is an annual cost.

### A2.3.4 Communication and maintenance

#### A2.3.4.1 Communications network

To deliver EUROSUR in line with the legislation, both the EBCGA and Member State NCCs will incur a communications network cost. This is the cost of providing internet access,

telecommunications etc. so that information can be shared. The estimated cost of the communications network is:

- €175,000 per NCC; and
- €2 million for the ECBGA.

The cost per NCC is multiplied by the total number of NCCs (30) to estimate the total cost of the telecommunications network. This is an annual cost, incurred each year. The calculation assumes that Member States implement the EUROSUR Regulation fully.

These costs are based on values taken from the previous Impact Assessment of EUROSUR, where MS and the EBCGA provided estimates of the cost items required to run EUROSUR.

#### A2.3.4.2 Additional communication network costs for EU-Confidential network

To upgrade the EUROSUR system to EU-Confidential level, NCCs will have to upgrade their communication network to EU-Confidential level, if they are not already operating at that level. The cost of operating the upgraded communication network in each NCC at EU-Confidential level is estimated to be an additional 5% of the cost of the communications network. This estimate is based on information from the previous impact assessment of EUROSUR. This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the Member States.

#### A2.3.4.3 Existing cost of decision support applications at the Member State NCC and EBCGA

The EBCGA currently uses some support applications to deliver EUROSUR in line with the current legislation. This is estimated to cost €2.4 million per year. This is based on information provided by the EBCGA. It has been assumed that EBCGA directly supports 65% of these costs and that Member States support 35% of these costs. This allocation reflects the fact that decision support application will need tailoring to the set-up and circumstances to each of the Member State; the 65% covered by EBCGA representing the common requirements for using these applications under the EUROSUR framework.

The Member State NCCs also use decision support applications under the existing legislation. This is estimated to cost €200,000 per NCC (30). This is based on the estimated value from the previous impact assessment of EUROSUR. The calculation assumes that Member States implement the EUROSUR Regulation fully.

These are an annual cost, incurred every year from 2020 to 2027.

#### A2.3.4.4 Existing cost of EUROSUR Fusion operational applications

EUROSUR Fusion services also use decision support applications as part of their operational support to the EBCGA and NCCs. These are estimated to cost €10 million per year for Copernicus services, and €3.4 million for other Fusion services. This is based on desk research of EBCGA spending. This is an annual cost, incurred each year. It has been assumed that 65% of this cost is borne by the EBCGA, and the remaining 35% of the cost is for the Member States (which utilise information from the decision support applications).

#### A2.3.4.5 Maintenance

The maintenance cost is assumed to be 10% of total operational spend for the option. This estimate is based on previous impact assessments undertaken by ICF which examined the cost of ICT systems.

## A2.4 Option 2 - Compulsory Inclusion of Border Crossing Points

All costs described in option 1, plus:

### A2.4.1 Infrastructure

#### A2.4.1.1 New NCC offices

Under option 2, some Member States may move the location of their NCC. The rationale is that by including other types of BCPs, the NCC could be required to move from one national authority to another, thereby changing the balance of powers between national authorities. This is likely to increase the number of staff they would have to employ and due to the inclusion of all border crossing points (including air BCPs) in the NCC data collection and analyses).

It is assumed that five Member States will change the location of their NCC under this option. The estimated cost of setting up a new NCC is estimated to be €5 million. This includes all security and network connection costs. The cost is based on research undertaken for the previous impact assessment of EUROSUR. The cost is assumed to be a one-off cost and occurs in 2020, so that the NCC can be fully functional for the period 2020 to 2027. The cost is incurred by the Member States.

Those Member State not necessitating a change in location would still need to find accommodate new staff into their premises. The rise in the number of staff required to implement Option 2 requires new office space to be purchased and or leased. This is assumed to take place from 2020 onwards. The total cost of increasing the square meters of the NCC premises to accommodate for new staff is assumed to be Estimated replacement cost of NCC building (calculated by amortisation of a new NCC over 20 years) X proportion of increase in staff.

### A2.4.2 Operating and IT equipment

#### A2.4.2.1 Technical solution to transmit BCP data into NCC

The EBCGA may need to develop a technical solution to allow NCCs to access BCP data as part of EUROSUR. This cost is estimated to be €100,000, and applies only to the EBCGA. The cost is assumed to be incurred in 2020. The estimated cost is based on information provided by the EBCGA.

#### A2.4.2.2 Implementation of new software at NCCs

The new technical solution to allow NCCs to access BCP data in the NCC will need to be installed in each NCC. It is assumed that the installation cost of the new software will cost €90,000 per NCC, which includes testing, implementing the software and ensuring staff can use the software. The cost is assumed to be incurred in 2020. The total cost is the estimated cost per NCC multiplied by the number of NCCs that do not already collect and analyse BCP data (16). The estimated cost is based on information from the previous impact assessment of EUROSUR and further Impact Assessments undertaken by ICF examining IT systems.

#### A2.4.2.3 Additional CAPEX for new EUROSUR Fusion Services

The specification of option 2 also requires an improvement of EUROSUR Fusion Services. For option 2, these upgrades will require an additional spending of €10 million. This cost is assumed to be incurred in 2020, so that EUROSUR Fusion Services can be fully implemented over the period 2020-2027. The cost only applies to the EBCGA. This unit cost is based on information provided by the EBCGA.

#### A2.4.2.4 Cost to install communication network with all BCP for physical response units

Under option 2, Member States need to have physical response units at BCPs. For the physical response unit to function successfully, the stations need to be connected to the EUROSUR system by a secure communications network. This is estimated to cost €45,000 per BCP. This is a one-off cost, estimated to be incurred in 2020.

The calculation of the cost of the communication networks is the cost of installation (€45,000) multiplied by the number of BCPs in each Member State. The cost is incurred by the Member States. This assumption is based on information provided by the EBCGA.

#### A2.4.2.5 Developing data agreement with eu-LISA

To access some data which will support the analysis in option 2, a data sharing agreement and data sharing processes need to be set up between the EBCGA and EU-LISA. This is estimated to cost €50,000.

This cost is a one-off cost, assumed to be incurred in 2020 incurred by the EBCGA, so that EUROSUR can be fully operational from 2020 to 2027.

### A2.4.3 Staff costs

#### A2.4.3.1 Additional staff costs for analysing BCP data

The specification of option 2 requires additional staff to those required to provide the existing EUROSUR services. For NCCs, there is an extra need for staff to analyse BCP data under this option. It is estimated that on average, each NCC requires an additional **0.055 FTE per BCP** to analyse the BCP data. This is an assumption based on an analysis of the existing number of staff at NCCs and whether the NCC analyses BCP data (information taken from country reports). The number of staff in four NCCs where BCP data is currently analysed (BG, HU, NL, RO) was compared to a selection of similar countries, based on risk factors (BE, EE, NO, SI) where BCP data and Air Border data is not currently collected. The number of staff (adjusted for compliance with the legislation) at each NCC was divided by the number of BCPs, to calculate an average number of staff in NCCs which collected and analysed BCP data and those that did not. The difference between these two figures informed the assumption of the number of additional staff required to analyse BCP data.

The total number of international BCPs is estimated to be 1,800, including maritime, land and air BCPs, based on information provided by the EBCGA. The BCPs have been weighted, as different BCPs will produce different volumes of data to analyse. BCPs that are open 24/7 have a weight of 1; BCPs open only in daytime have a weight of 0.75; other airports and ports (on-demand) have a weight of 0.5, and all unspecified BCPs have a weight of 0.1.

The cost of the additional staff member (liaison officer) is an ongoing cost, incurred every year from 2020 to 2027. The additional member of staff is assumed to be an analyst, and the annual labour cost for an analyst at an NCC is estimated to be €35,000 (based on information from the previous EUROSUR impact assessment and data from Eurostat). An additional 15% has been added to the labour costs. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job role. The 15% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff.

The cost to NCCs each year is the number of additional staff (0.055 per BCP) multiplied by the labour cost for an analyst and the costs associated with the worker undertaking their job role.

#### A2.4.3.2 Additional staff costs for EUROSUR Fusion services

The specification of option 2 also requires additional EUROSUR Fusion services. It is estimated that an additional 10 FTEs are required to deliver EUROSUR Fusion services under option 2. It is assumed that the labour cost for each EUROSUR Fusion services FTE is €105,300. This is based on information from the previous impact assessment of EUROSUR and information from Eurostat.

The estimated staff cost for the additional EUROSUR Fusion service staff is calculated by multiplying the labour cost by the number of additional FTEs (10). This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the EBCGA.

#### A2.4.3.3 Training costs

Under option 2, some staff will require additional training (above and beyond the usual Continuing Professional Development training) so that they can successfully analyse the BCP data and provider useful information to the situational pictures.

This training would be developed centrally, by the EBCGA, and then shared with NCCs who can then undertake their own training. The cost of developing the training materials is estimated to be 70 hours of EBCGA staff time (with a labour cost of €105,300 per year). The ECBGA staff member is assumed to work 35 hours per week.

The calculation of the cost of developing the training is the number of hours spent developing the training, multiplied by the labour cost divided by the number of paid hours per year (35 * 52).

This is assumed to be a one-off cost, incurred in 2020, so that the BCP data can be analysed over the period 2020 to 2027. The cost is incurred by the EBCGA.

The cost of attending the training has been estimated in a similar way. The training is estimated to have a duration of two hours, and an average of four analysts per NCC requiring training.

The calculation of the cost of attending training is the number of attendees (4) multiplied by the duration (2 hours) multiplied by the labour cost (€35,000) divided by the number of paid hours per year (35 * 52). This is then multiplied by the number of NCCs (30).

It is assumed that the training will have to be run in 2020, and then rerun in 2026 so that the BCP data can be analysed over the period 2020 to 2027. The cost is incurred by the Member States.

### A2.4.4 Communication and maintenance

#### A2.4.4.1 Additional cost of decision support applications at Member State NCC and EBCGA

Option 2 requires additional support applications so that EUROSUR Fusion services can provides the information needed to support NCCs and decision making. In this option, these additional applications are estimated to cost €2.2 million per year. This is due to connectivity with other EU system (SIS 2, VIS, Eurodac) and presenting information from these systems. It has been assumed that 65% of this cost is borne by the EBCGA, and the remaining 35% of the cost is for the Member States (which utilise information from the decision support applications). The cost estimates are based on information provided by the EBCGA.

#### A2.4.4.2 Maintenance

The maintenance cost is assumed to be 10% of operational spend for the option. This estimate is based on previous impact assessments undertaken by ICF which examined the cost of ICT systems.

## A2.5 Option 3 - Compulsory inclusion of Air Border Surveillance

All costs described in option 2, plus:

### A2.5.1 Infrastructure

#### A2.5.1.1 Accommodation for additional staff

The rise in the number of staff required to implement Option 3 requires new office space to be purchased and or leased. This is assumed to take place from 2020 onwards. The total cost of increasing the square meters of the NCC premises to accommodate for new staff is assumed to be estimated replacement cost of NCC building (calculated by amortisation of a new NCC over 20 years) X proportion of increase in staff. Hence the cost of accommodating new staff is €0.18 million per year.

### A2.5.2 Operating and IT equipment

#### A2.5.2.1 Technical solution to allow Air border surveillance data into NCC

The EBCGA may need to develop a technical solution to allow NCCs to access air border surveillance data as part of EUROSUR. This cost is estimated to be €100,000, and applies only to the EBCGA. The cost is assumed to be incurred in 2020. The estimated cost is based on information provided by the EBCGA.

#### A2.5.2.2 Implementation of new software at NCCs

The new technical solution to allow NCCs to access air border surveillance data in the NCC will need to be installed in each NCC. It is assumed that the installation cost of the new software will cost €90,000 per NCC, which includes testing, implementing the software and ensuring staff can use the software. The cost is assumed to be incurred in 2020. The total cost is the estimated cost per NCC multiplied by the number of NCCs that do not already collect and analyse Air Border data (20). The estimated cost is based on information from the previous impact assessment of EUROSUR and further Impact Assessments undertaken by ICF examining IT systems.

#### A2.5.2.3 Additional CAPEX for new EUROSUR Fusion Services

The specification of option 3 also requires an improvement of EUROSUR Fusion Services. For option 3, these upgrades will require an additional spend of €20 million. This cost is assumed to be incurred in 2020, so that EUROSUR Fusion Services can be fully implemented over the period 2020-2027. The cost only applies to the EBCGA. This unit cost is based on information provided by the EBCGA.

### A2.5.3 Staff costs

#### A2.5.3.1 Additional staff costs for analysing Air border data

The specification of option 3 requires additional staff to those required to provide the existing EUROSUR services. For NCCs, this is extra staff to analyse air border

surveillance data. To estimate the number of additional staff required to analyse air border surveillance data, the number of staff in five (AT, ES, FI, LV and SE) NCCs where air border surveillance data is already analysed was compared to the number of staff in NCCs which do not analyse air border surveillance data (DK, IT, CY, HR, BE), which were similar in the number of flights from non-EU Member States and border risk. The number of staff was adjusted for whether the NCC also analysed BCP data and the level of compliance with the current EUROSUR legislation.

The number of staff in each group was divided by the number of flights to and from non-EU countries. This data was taken from Eurostat. It was not possible to access information on the number of flights to and from non-Schengen countries, therefore non-EU countries has been used as a proxy measure for this, as it was assessed to be a reasonable measure in the absence of perfect data. The difference between the number of staff per inbound flight to the EU in each group was calculated, and used to inform the assumption on the number of additional staff required to analyse Air border surveillance data.

An additional calculation to account for economies of scale was introduced – a minimum of 1 FTE is required in each Member State; if the calculation above estimated that under 10 staff were required, this figure was divided by 3; if more than 10 staff were required, this figure was divided by 4.

It is estimated that on average, each NCC requires an additional **0.00006 FTE per inbound flight to the EU and 0.0002 FTE per km of border** to analyse the air border surveillance data. This is an assumption based on an analysis of the existing number of staff at NCCs and whether the NCC analyses air border surveillance data, the length of a countries border, the risk factor at the border (information taken from country reports) and the number of external-EU flights to and from each country (from Eurostat).

The cost of the additional staff member is an ongoing cost, incurred every year from 2020 to 2027. The additional member of staff is assumed to be an analyst, and the annual labour cost for an analyst at an NCC is estimated to be €35,000 (based on information from the previous EUROSUR impact assessment and data from Eurostat). An additional 15% has been added to the labour costs. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job role. The 15% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff.

The cost to NCCs each year is the number of additional staff (0.0002 per km of border plus 0.00006 per external-EU flight, adjusted for economies of scale) multiplied by the labour cost for an analyst and the costs associated with the worker undertaking their job role.

#### A2.5.3.2 Additional staff costs for EUROSUR Fusion services

The specification of option 3 also requires additional EUROSUR Fusion services. It is estimated that an additional 6 FTEs are required to deliver EUROSUR Fusion services under option 3. It is assumed that the labour cost for each EUROSUR Fusion FTE is €105,300. This labour cost is based on information from the previous impact assessment of EUROSUR and information from Eurostat.

The estimated staff cost for the additional EUROSUR Fusion service staff is calculated by multiplying the labour cost by the number of additional FTEs (6). This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the EBCGA.

#### A2.5.3.3 Training costs

Under option 3, some staff will require additional training (above the usual Continuing Professional Development training) in order that they can successfully analyse the air border surveillance data and provider useful information to the situational pictures.

It is assumed that this training would be developed centrally, by the EBCGA, and then shared with NCCs who can then undertake their own training. The cost of developing the training materials is estimated to be 70 hours of EBCGA staff time (with a labour cost of €105,300 per year). The ECBGA staff member is assumed to work 35 hours per week.

The calculation of the cost of developing the training is the number of hours spent developing the training, multiplied by the labour cost divided by the number of paid hours per year (35 * 52).

This is assumed to be a one-off cost, incurred in 2020, so that the air border surveillance data can be analysed over the period 2020 to 2027. The cost is incurred by the EBCGA.

The cost of attending the training has been estimated in a similar way. The training is estimated to have a duration of two hours, and an average of four analysts per NCC require training.

The calculation of the cost of attending training is the number of attendees (4) multiplied by the duration (2 hours) multiplied by the labour cost (€35,000) divided by the number of paid hours per year (35 * 52). This is then multiplied by the number of NCCs (30).

It is assumed that the training will have to be run in 2020, and then rerun in 2026, so that the air border surveillance data can be analysed over the period 2020 to 2027. The cost is incurred by the Member States.

### A2.5.4 Communication and maintenance

#### A2.5.4.1 Additional decision support applications at EUROSUR Fusion Services

Option 3 requires additional support applications so that EUROSUR Fusion services can provides the information needed to support NCCs and decision making. In this option, these additional applications are estimated to cost €9.4 million per year, to provide strategic air border surveillance using advanced technology, such as HAPS, aerostats, RPAS. It has been assumed that 65% of this cost is borne by the EBCGA, and the remaining 35% of the cost is for the Member States (which utilise information from the decision support applications). The cost estimates are based on information provided by the EBCGA.

#### A2.5.4.2 Maintenance

The maintenance cost is assumed to be 10% of operational spend for the option. This estimate is based on previous impact assessments undertaken by ICF which examined the cost of ICT systems.

## A2.6 Option 4.1 - Improved information exchange with third Countries

All costs described in option 3, plus:

### A2.6.1 Infrastructure

There is no additional infrastructure related cost for the EBCGA or the Member States under Option 4.1.

#### A2.6.1.1 New NCC offices in third countries

It is assumed that there are 19 third countries where NCCs will be needed under this option. The capital cost of a new NCC office in a third country is assumed to be €500,000. This is based on information provided by DG HOME. Although some of the third countries will have an existing NCC, it is assumed that these will have to move due to the expanded requirements under option 4.1.

The total cost of new NCC offices is the value of a new office multiplied by the number of third countries (19). This cost is assumed to be incurred by the third countries (Member States category in the spreadsheet). The cost is assumed to be incurred in 2020, so that the third country NCCs are fully operational from 2020 to 2027.

#### A2.6.1.2 Security infrastructure costs at NCCs in third countries

The NCCs in third countries will require building security equipment (cost incurred in 2020), which will also need to be replaced every five years (in 2026). The estimated cost of building security at the third country NCCs is estimated to be €30,000, based on the cost in Member States.

The cost per NCC is multiplied by the total number of third country NCCs (19) to estimate the total cost of building security equipment.

### A2.6.2 Operating and IT equipment

There is no additional operating and IT equipment related cost for the Member States under Option 4.1.

#### A2.6.2.1 Technical solution to allow third countries to provide data to EUROSUR and access a subset of the data in EUROSUR and related services (EBCGA)

The EBCGA may need to develop a technical solution to allow third country NCCs to provide data to EUROSUR and to access situational pictures. This cost is estimated to be €1.2 million, and applies only to the EBCGA. The cost is assumed to be incurred in 2020. The estimated cost is based on information provided by the EBCGA.

#### A2.6.2.2 Implementation of new software at third country NCCs

The software required in third country NCCs will need to be installed in each NCC. It is assumed that the installation cost of the software will cost €90,000 per NCC, which includes testing, implementing the software and ensuring staff can use the software. The cost is assumed to be incurred in 2020. The total cost is the estimated cost per NCC multiplied by the number of NCCs (19). The estimated cost is based on information from the previous impact assessment of EUROSUR and further Impact Assessments undertaken by ICF examining IT systems.

#### A2.6.2.3 Additional CAPEX for new EUROSUR Fusion Services (EBCGA)

The specification of option 4.1 also requires an improvement of EUROSUR Fusion Services. For option 4.1, these upgrades will require an additional spend of €10 million. This cost is assumed to be incurred in 2020, so that EUROSUR Fusion Services can be fully implemented over the period 2020-2027. The cost only applies to the EBCGA. This unit cost is based on information provided by the EBCGA.

### A2.6.3 Staff costs

There is no additional staff cost for the Member States under Option 4.1.

#### A2.6.3.1 Staff costs in third country NCCs

A similar number of staff will be required in third country NCCs as are needed in Member State NCCs. However, it is also assumed that labour is less costly in the third countries than the average cost in the EU. Therefore, the total labour cost for an NCC in a Member State (€824,000) has been multiplied by the ratio of earnings in the third countries to earnings in the EU, which is approximately 0.25. Therefore, the total annual staff cost in third country NCCs is estimated to be €206,000.

The total staff cost of third country NCCs is calculated by multiplying the number on third country NCCs (19) by the average staff cost. This is an annual cost, incurred every year between 2020 and 2027. The cost is incurred by the third countries (Member States in the spreadsheet). An additional 50% has been added to the labour costs. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job role. The 50% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff, and is higher than for Member State NCCs due to the lower average earnings in third countries.

#### A2.6.3.2 Additional staff costs for EUROSUR Fusion services

The specification of option 4.1 also requires additional EUROSUR Fusion services. It is estimated that an additional 10 FTEs are required to deliver EUROSUR Fusion services under option 4.1. It is assumed that the labour cost for each EUROSUR Fusion FTE is €105,300. This is based on information from the previous impact assessment of EUROSUR and information from Eurostat.

The estimated staff cost for the additional EUROSUR Fusion service staff is calculated by multiplying the labour cost by the number of additional FTEs (10). This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the EBCGA.

#### A2.6.3.3 Training costs

Under option 4.1, the staff at third country NCCs will require training in order that they can successfully analyse data and provider useful information to the situational pictures.

It is assumed that this training would be developed centrally, by the EBCGA, and then shared with the third country NCCs who can then undertake their own training. The cost of developing the training materials is estimated to be 150 hours of EBCGA staff time (with a labour cost of €105,300 per year). The ECBGA staff member is assumed to work 35 hours per week.

The calculation of the cost of developing the training is the number of hours spent developing the training, multiplied by the labour cost divided by the number of paid hours per year (35 * 52).

This is assumed to be a one-off cost, incurred in 2020, so that the third country NCCs can be fully operational over the period 2020 to 2027. The cost is incurred by the EBCGA.

The cost of attending the training has been estimated in a similar way. The training is estimated to have a duration of one week (35 hours), and an average of 14 staff members per NCC require training.

The calculation of the cost of attending training is the number of attendees (14) multiplied by the duration (35 hours) multiplied by the labour cost (€8,750) divided by the number of paid hours per year (35 * 52). This is then multiplied by the number of NCCs (19).

It is assumed that the training will have to be run in 2020, and then rerun in 2026, so that the third country NCCs can be fully operational over the period 2020 to 2027. The cost is incurred by the Member States.

#### A2.6.4 Communication and maintenance

##### A2.6.4.1 Additional decision support applications at EUROSUR Fusion Services (EBCGA and Member States)

Option 4.1 requires additional support applications so that EUROSUR Fusion services can provides the information needed to support NCCs and decision making. In this option, these additional applications are estimated to cost €1.2 million per year. It has been assumed that 65% of this cost is borne by the EBCGA, and the remaining 35% of the cost is for the Member States (which utilise information from the decision support application. The cost estimates are based on information provided by the EBCGA.

##### A2.6.4.2 Maintenance

The maintenance cost is assumed to be 10% of operational spend for the option. This estimate is based on previous impact assessments undertaken by ICF which examined the cost of ICT systems.

### A2.7 Option 4.2 - Inclusion of secondary movements

All costs described in option 3, plus:

#### A2.7.1 Infrastructure

##### A2.7.1.1 Accommodation for additional staff

The rise in the number of staff required to implement Option 3 requires new office space to be purchased and or leased. This is assumed to take place from 2020 onwards. The total cost of increasing the square meters of the NCC premises to accommodate for new staff is assumed to be Estimated replacement cost of NCC building (calculated by amortisation of a new NCC over 20 years) X proportion of increase in staff. Hence the cost of accommodating new staff is €0.2 million per year.

#### A2.7.2 Operating and IT equipment

No additional operating and IT costs were identified. It is assumed EUROSUR Fusion Services will use existing applications in option 4.2.

### A2.7.3 Staff costs

#### A2.7.3.1 Additional staff costs for EUROSUR Fusion services

The specification of option 4.2 also requires additional EUROSUR Fusion services. It is estimated that an additional 2 FTEs are required to deliver EUROSUR Fusion services under option 4.2. It is assumed that the labour cost for each EUROSUR Fusion FTE is €105,300. This is based on information from the previous impact assessment of EUROSUR and information from Eurostat.

The estimated staff cost for the additional EUROSUR Fusion service staff is calculated by multiplying the labour cost by the number of additional FTEs (2). This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the EBCGA.

#### A2.7.3.2 Additional staff costs for secondary movement experts

The specification of option 4.2 requires NCCs to have some secondary movement experts, who are familiar with secondary movement data and the organisations that collect it. It is estimated that an average of 1 FTE per NCC is required. It is assumed that the labour cost for each EUROSUR secondary movement expert FTE is €32,000. This is based on information from the previous impact assessment of EUROSUR and information from Eurostat. An additional 15% has been added to the labour costs. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job role. The 15% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff.

The estimated staff cost for the additional staff is calculated by multiplying the labour cost by the number of additional FTEs and the costs associated with the worker undertaking their job role. This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the Member States.

### A2.7.4 Communication and maintenance

#### A2.7.4.1 Additional decision support applications at EUROSUR Fusion Services

Option 4.2 requires additional support applications so that EUROSUR Fusion services can provides the information needed to support NCCs and decision making. In this option, these additional applications are estimated to cost €1.1 million per year. It has been assumed that 65% of this cost is borne by the EBCGA, and the remaining 35% of the cost is for the Member States (which utilise information from the decision support application. The cost estimates are based on information provided by the EBCGA.

#### A2.7.4.2 Maintenance

The maintenance cost is assumed to be 10% of operational spend for the option. This estimate is based on previous impact assessments undertaken by ICF which examined the cost of ICT systems.

## A2.8 Option 4.3 - Enhanced coordinated / integrated planning

All costs described in option 3, plus:

### A2.8.1 Infrastructure

#### A2.8.1.1 Accommodation for additional staff

The rise in the number of staff required to implement Option 3 requires new office space to be purchased and or leased. This is assumed to take place from 2020 onwards. The total cost of increasing the square meters of the NCC premises to accommodate for new staff is assumed to be Estimated replacement cost of NCC building (calculated by amortisation of a new NCC over 20 years) X proportion of increase in staff. Hence the cost of accommodating new staff is €0.6 million per year.

### A2.8.2 Operating and IT equipment

#### A2.8.2.1 Additional CAPEX for new EUROSUR Fusion Services

The specification of option 4.3 also requires an improvement of EUROSUR Fusion Services. For option 4.3, these upgrades will require an additional spend of €5 million. This cost is assumed to be incurred in 2020, so that EUROSUR Fusion Services can be fully implemented over the period 2020-2027. The cost only applies to the EBCGA. This unit cost is based on information provided by the EBCGA.

### A2.8.3 Staff costs

#### A2.8.3.1 Additional staff costs for analysing joint operation planning and or coordination of national operational plans

The specification of option 4.3 requires additional staff to plan joint operations and to strategically plan operations alongside other Member States. For NCCs, this is extra staff to coordinate planning of operations. It is estimated that on average, each NCC requires an additional 3 FTEs to coordinate the planning of operations.

The cost of the additional staff member is an ongoing cost, incurred every year from 2020 to 2027. The additional member of staff is assumed to be a planning officer, and the annual labour cost for a planning officer at an NCC is estimated to be €32,000 (based on information from the previous EUROSUR impact assessment and data from Eurostat). An additional 15% has been added to the labour costs. This is to cover the costs associated with providing a desk, IT systems and other costs associated with the member of staff being able to undertake their job role. The 15% is based on the ratio between the labour cost and desk / IT costs for EBCGA staff.

The cost to NCCs each year is the number of additional staff (3) multiplied by the labour cost for a planning officer and the costs associated with the worker undertaking their job role.

#### A2.8.3.2 Additional staff costs for EUROSUR Fusion services

The specification of option 4.3 also requires additional EUROSUR Fusion services. It is estimated that an additional 6 FTEs are required to deliver EUROSUR Fusion services under option 4.3. It is assumed that the labour cost for each EUROSUR Fusion FTE is €105,300. This is based on information from the previous impact assessment of EUROSUR and information from Eurostat.

The estimated staff cost for the additional EUROSUR Fusion service staff is calculated by multiplying the labour cost by the number of additional FTEs (6). This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the EBCGA.

#### A2.8.3.3 Additional staff costs for EBCGA

Option 4.3 will also require additional staffing in the EBCGA. These staff are:

- Planning officer staff (18 staff members, cost estimated to €141,700 per staff member);
- IT staff members (8 staff members, cost estimated to be €72,200 per staff member); and
- Risk analysis staff (12 staff members, cost estimated to be €105,300 per staff member).

The estimated staff cost for the additional staff is calculated by multiplying the labour cost by the number of additional FTEs. This is an annual cost, assumed to be incurred every year from 2020 to 2027. The cost is to the EBCGA.

### A2.8.4 Communication and maintenance

#### A2.8.4.1 Additional decision support applications at EUROSUR Fusion Services

Option 4.3 requires additional support applications so that EUROSUR Fusion services can provides the information needed to support NCCs and decision making. In this option, these additional applications are estimated to cost €1.1 million per year. It has been assumed that 65% of this cost is borne by the EBCGA, and the remaining 35% of the cost is for the Member States (which utilise information from the decision support application. The cost estimates are based on information provided by the EBCGA.

#### A2.8.4.2 Maintenance

The maintenance cost is assumed to be 10% of operational spend for the option. This estimate is based on previous impact assessments undertaken by ICF which examined the cost of ICT systems.

# Annex 3 Detailed benefit assumptions

This annex describes the assumptions and calculations for assigning a value to the indicators of the benefits model.

The benefits included in the calculations are the same in each of the policy options, but the scale of the effect varies across each policy option.

The benefits for each option are cumulative – the indicator values for each benefit for option 2 includes all the benefits associated with option 1, plus the extra benefits associated with option 2. The indicator values for each benefit for option 4 sub options (4.1, 4.2, and 4.3) build on those derived from option 3 (the indicator values for each benefit for option 3 plus the additional benefits derived from each of the option 4 sub-options separately).

## A3.1 Improvement in data quality, flow and speed of reporting

The possible evolutions of EUROSUR are expected to improve data quality as well as the flow and speed of reporting. The assessment of the extent to which each option will deliver this expected benefit has been estimated via the following indicators:

- Data quality (re-entry rate) – measured in terms of the proportion of incomplete data entries divided by the number of data entered into the EUROSUR system;
- Volume of data entered – measured in terms of the number of data entries in EUROSUR by layer (events and products in the analysis layer) or proportion of assets participating in joint operations reported on the operational layer and this on an annual basis
- Latency of data – measured in terms of the time elapsed between the occurrence of the new information and the entry of that information (by layer – event, operational and analysis) in the EUROSUR system.

Table A3.1 presents the baseline value, maximum value of such indicators as well as the estimated operational benefits brought by each of the different options.

*Table A3.1 Operational benefit: improvement in data quality, flow and reporting speed*

| | Data quality (re-entry rate) | Volume of data entered: events[96] | Volume of data entered: Operational assets | Volume of data entered: Analytical reports | Data latency |
|---|---|---|---|---|---|
| **Baseline values**[97] | Greater than 135% | 28,000 | 0% | 500 | All events are reported within 24 hours |
| **Maximum values**[98] | Less than 100% | 84,000 | 100% | 1500 | 50% of event are reported within 24 hours |
| **Option 1** | Less than 100% | 56,000 | Limited benefits | 1000 | All events are reported within 24 hours |

[96] Estimated number of events depending on additional events collected through the introduction of the possible evolutions of EUROSUR

[97] Source: EBCGA analysis from EUROSUR system

[98] Source: estimated by EBCGA

| | Data quality (re-entry rate) | Volume of data entered: events[96] | Volume of data entered: Operational assets | Volume of data entered: Analytical reports | Data latency |
|---|---|---|---|---|---|
| **Option 1.1** | Less than 100% | Greater than 56,000 | Moderate benefits | Greater than 1000 | All events are reported within 24 hours |
| **Option 2** | Less than 100% | 60,000 | Limited benefits | 1100 | All events are reported within 24 hours |
| **Option 2.1*** | Less than 100% | Greater than 60,000 | Moderate benefits | Greater than 1100 | All events are reported within 24 hours |
| **Option 3** | Less than 100% | 66,000 | Limited benefits | 1200 | All events are reported within 24 hours |
| **Option 3.1*** | Less than 100% | Greater than 66,000 | Moderate benefits | Greater than 1200 | All events are reported within 24 hours |
| **Option 4.1** | Less than 100% | 84,000 | Limited benefits | 1500 | Most of the events are reported within 24 hours |
| **Option 4.11** | Less than 100% | Greater than 84,000 | Moderate benefits | Greater than 1500 | Most of the events are reported within 24 hours |
| **Option 4.2** | Less than 100% | 84,000 | Limited benefits | 1500 | All events are reported within 24 hours |
| **Option 4.21** | Less than 100% | Greater than 84,000 | Moderate benefits | Greater than 1500 | All events are reported within 24 hours |
| **Option 4.3** | Less than 100% | 66,000 | High benefits | 1200 | All events are reported within 24 hours |
| **Option 4.31** | Less than 100% | 66,000 | High benefits | Greater than 1200 | All events are reported within 24 hours |

** includes the EU Confidential network*

### A3.2 Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)

The possible evolutions of EUROSUR are expected to improve interagency cooperation through exchange of data across geographies and sectors **at EU Level**. The assessment of the extent to which each option will deliver this expected benefit has been estimated via the following indicators:

- The number of cooperation agreement by sector
- The number of data or functional services covered by EU level inter-agency agreements
- The number of analytical services exchanged at EU level falling within the scope of the agreements

Table A3.2 presents the baseline value, maximum value of such indicators as well as the estimated operational benefits brought by each of the different options.

*Table A3.2 Operational benefit: Improved interagency cooperation through exchange of data across geographies and sectors (EU LEVEL)*

| | Number of cooperation agreement by sector | Number of data or functional services covered by EU level inter-agency agreements | Number of analytical services exchanged at EU level falling within the scope of the agreements |
|---|---|---|---|
| **Baseline values** | 9[99] | 13[100] | A minimum of 300 per year[101] |
| **Maximum values** | 12[102] | 17[103] | Unlimited |
| **Option 1** | 9 | 13 | A minimum of 300 per year |
| **Option 1.1** | 9 | 13 | A minimum of 300 per year |
| **Option 2** | 10 | 15 | A minimum of 300 per year |
| **Option 2.1*** | 10 | 15 | A minimum of 300 per year |
| **Option 3** | 10 | 16 | A minimum of 300 per year |

[99] Source: EBCGA. The Agency currently covers eight coast guard functions and three additional sectors namely: maritime safety, maritime, port and ship security, fisheries inspection and control, the prevention and suppression of trafficking and smuggling and connected maritime and land law enforcement; Search and Rescue, (Maritime) environmental protection and response; and three additional sectors aviation (e.g. air traffic control, airspace management); earth observation and cooperation with the military. Note that the two functions "Maritime border control" and "Maritime monitoring and surveillance" are coast guard functions not subject to EU or inter-agency cooperation since they are within the remit of the EBCGA.

[100] Source EBCGA: Currently EFS covers the following 13 areas: Vessel Monitoring System (VMS); Vessel Detection Service; Vessel Monitoring and Tracking Service; Tracking Vessels of Interest Service; Anomaly Detection Service; Maritime Simulation Module Service; Maritime Aerial Surveillance; Satellite Imagery Service; Coastal Monitoring Service; Pre frontier Monitoring Service; Reference Imagery / Mapping Service; Visual Data Discovery Service; Meteo Service; Multipurpose Aerial Surveillance activities (MAS).

[101] Source: EUROSUR Evaluation report. 294 analytical reports were provided by EBCGA to EU and national public bodies since the start of EUROSUR.

[102] Source: EBCGA. In addition to the eight functions, the Agency's agreements could cover at the maximum all the 11 coast guard functions and three additional sectors: Maritime safety, including vessel traffic management; Maritime, ship and port security; **Maritime customs activities**; The prevention and suppression of trafficking and smuggling and connected maritime law enforcement; Maritime environmental protection and response; Maritime search and rescue; **Ship casualty and maritime assistance service**; **Maritime accident and disaster response**; Fisheries inspection and control and activities related to the above Coast Guard Functions. Note that the two functions "Maritime border control" and "Maritime monitoring and surveillance" are coast guard functions not subject to EU or inter-agency cooperation since they are within the remit of the EBCGA.

[103] Source EBCGA: It is expected that EBCGA will bring one new service at least every year over the period and introduce at least the following services in the list of EFS services: Air Border Surveillance services; monitoring of secondary movement services; Border Crossing Point analysis services as well as the Europol Big Data services.

| | Number of cooperation agreement by sector | Number of data or functional services covered by EU level inter-agency agreements | Number of analytical services exchanged at EU level falling within the scope of the agreements |
|---|---|---|---|
| **Option 3.1*** | 10 | 16 | A minimum of 300 per year |
| **Option 4.1** | 12 | 16 | A minimum of 300 per year |
| **Option 4.11** | 12 | 16 | A minimum of 300 per year |
| **Option 4.2** | 10 | 17 | A minimum of 300 per year |
| **Option 4.21** | 10 | 17 | A minimum of 300 per year |
| **Option 4.3** | 10 | 16 | A minimum of 300 per year |
| **Option 4.31** | 10 | 16 | A minimum of 300 per year |

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### A3.3 Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)

The possible evolutions of EUROSUR are expected to improve interagency cooperation through exchange of data across geographies and sectors **at Member State Level**. The assessment of the extent to which each option will deliver this expected benefit has been estimated via the following indicators:

- The proportion of NCCs exchanging event related data with neighbouring NCCs on a regular basis;
- The proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis;
- The proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis; and,
- The proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level)

Table A3.3 presents the baseline value, maximum value of such indicators as well as the estimated operational benefits brought by each of the different options.

*Table A3.3 Operational benefit: Improved interagency cooperation through exchange of data across geographies and sectors (Member State level)*

| | Proportion of NCCs exchanging data related to events with neighbouring NCCs on a regular basis | Proportion of NCCs exchanging data related to operational assets with neighbouring NCCs on a regular basis | Proportion of NCCs exchanging data related to analytical reports with neighbouring NCCs on a regular basis | Proportion of national authorities involved in border control exchanging data with NCCs on a regular basis by governance level (Local, Regional, National level) |
|---|---|---|---|---|
| **Baseline values**[104] | 77% | 0% | 7% | 33% |
| **Maximum values**[105] | 100% | 100% | 100% | 100% |
| **Option 1** | 80% | Limited benefits | 14% | 33% |
| **Option 1.1** | 100% | Moderate benefits | 15% | 33% |
| **Option 2** | 80% | Limited benefits | 28% | Greater than 33% |
| **Option 2.1*** | 100% | Moderate benefits | 31% | Greater than 33% |
| **Option 3** | 80% | Limited benefits | 31% | Greater than 36% |
| **Option 3.1*** | 100% | Moderate benefits | 34% | Greater than 36% |
| **Option 4.1** | 80% | Limited benefits | 62% | Greater than 50% |
| **Option 4.11** | 100% | Moderate benefits | 68% | Greater than 50% |
| **Option 4.2** | 80% | Limited benefits | 62% | 100% |
| **Option 4.21** | 100% | Moderate benefits | 68% | 100% |
| **Option 4.3** | 100% | 100% | 75% | Greater than 66% |
| **Option 4.31** | 100% | 100% | 80% | Greater than 66%% |

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[104] Source: EUROSUR Evaluation, EBCGA analysis from EUROSUR system as well as EBCGA estimation

[105] Source: estimated by EBCGA.

## A3.4 Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks and Third Countries)

The possible evolutions of EUROSUR are expected to improve interagency cooperation through exchange of data across geographies and sectors **in Regional Networks / Third Countries**. The assessment of the extent to which each option will deliver this expected benefit has been estimated via the following indicators:

- The working arrangements between EBCGA and third countries;
- The number of data or analytical services covered by EBCGA working arrangements with third countries; and,
- The bilateral agreements between Member States and third countries (or third countries part of the regional networks)

Table A3.4 presents the baseline value, maximum value of such indicators as well as the estimated operational benefits brought by each of the different options.

*Table A3.4 Operational benefit: Improved interagency cooperation through exchange of data across geographies and sectors (Regional Networks / Third Countries)*

| | Working arrangements between EBCGA and third countries | Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | Bilateral agreements between Member States and third countries (or third countries part of the regional networks) |
|---|---|---|---|
| **Baseline values**[106] | 19 | 0 | 26 |
| **Maximum values**[107] | 25 | 17 | 26 at the minimum |
| **Option 1** | 19 | 0 | 26 |
| **Option 1.1** | 19 | 0 | 26 |
| **Option 2** | 19 | 0 | 26 |
| **Option 2.1*** | 19 | 0 | 26 |
| **Option 3** | 19 | 0 | 26 |
| **Option 3.1*** | 19 | 0 | 26 |
| **Option 4.1** | 25 | 17 | 26 at the minimum |
| **Option 4.11** | 25 | 17 | 26 at the minimum |
| **Option 4.2** | 19 | 0 | 26 |

[106] Source: EBCGA analysis based on the current agreements between the Agency and the third countries.

[107] Source: estimated by EBCGA based on upcoming or future agreements, analytical services already available. Virtually, the EBCGA could sign agreement with all 193 (but the EU 28) countries part of the United nations.

| | Working arrangements between EBCGA and third countries | Number of data or analytical services covered by EBCGA working arrangements with 3rd countries | Bilateral agreements between Member States and third countries (or third countries part of the regional networks) |
|---|---|---|---|
| **Option 4.21** | 19 | 0 | 26 |
| **Option 4.3** | 19 | 0 | 26 |
| **Option 4.31** | 19 | 0 | 26 |

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## A3.5 Improved situational awareness at Member States' NCCs and across Europe

The possible evolutions of EUROSUR are expected to improve situational awareness at Member States' NCCs and across Europe. The assessment of the extent to which each option will deliver this expected benefit has been estimated via the following indicators:

- The coverage of border sections (by Land / Sea / Air border) (%)
- The coverage of border crossing points (%)
- The coverage of external airs border (%)
- The coverage of irregular migration phenomena
- The coverage of border control assets included in the operational layer (%)

Table A3.5 presents the baseline value, maximum value of such indicators as well as the estimated operational benefits brought by each of the different options.

*Table A3.5 Operational benefit: Improved situational awareness at Member States' NCCs and across Europe*

| | Coverage of border sections (by Land / Sea / Air border) (%) | Coverage of border crossing points (%) | Coverage of external air border (%) | Coverage of irregular migration phenomena | Coverage of border control assets included in the operational layer (%) |
|---|---|---|---|---|---|
| **Baseline values**[108] | 50%[109] | Max 66%[110] | 0%[111] | 3[112] | 30%[113] |

[108] Source : ICF analysis.

[109] Source ICF estimation. The current regulation mandates EUROSUR to cover land and maritime borders. If air borders are to be covered this represent the same area than the land and maritime borders combined, that is twice as much as currently covered by the EUROSUR Regulation.

[110] Source ICF estimation based on an analysis of EU 28 border crossing points at sea, land and air borders.

[111] Source: EUROSUR current regulation. The current Regulation does not mandate Member States to cover air borders in their reporting to EUROSUR.

[112] Source: ICF elaboration. Currently EUROSUR reporting covers smugglers/ facilitators, irregular crossings and irregular migrants. In the future, they could cover at least secondary movements and monitoring of the external air border.

[113] Source: EUROSUR Evaluation. A third of the Member States indicated that they display their own assets in the operational layer, but no Member State indicates that it shares its assets through the operational layer with other authorities.

| | Coverage of border sections (by Land / Sea / Air border) (%) | Coverage of border crossing points (%) | Coverage of external air border (%) | Coverage of irregular migration phenomena | Coverage of border control assets included in the operational layer (%) |
|---|---|---|---|---|---|
| **Maximum values**[114] | 100% | 100% | 100% | A minimum of 5 | 100%[115] |
| **Option 1** | 50% | Max 66% | Limited benefits | A minimum of 3 | 30% |
| **Option 1.1** | 50% | Max 66% | Limited benefits | A minimum of 3 | 33% |
| **Option 2** | 50% min | 100% | Limited benefits | A minimum of 3 | 30% |
| **Option 2.1*** | 50% min | 100% | Limited benefits | A minimum of 3 | 33% |
| **Option 3** | 100% | 100% | High benefits | A minimum of 4 | 30% |
| **Option 3.1*** | 100% | 100% | High benefits | A minimum of 4 | 33% |
| **Option 4.1** | 100% | 100% | High benefits | A minimum of 4 | 30% |
| **Option 4.11** | 100% | 100% | High benefits | A minimum of 4 | 33% |
| **Option 4.2** | 100% | 100% | High benefits | A minimum of 5 | 30% |
| **Option 4.21** | 100% | 100% | High benefits | A minimum of 5 | 33% |
| **Option 4.3** | 100% | 100% | High benefits | A minimum of 4 | Higher than 33%% |
| **Option 4.31** | 100% | 100% | High benefits | A minimum of 4 | Higher than 33% |

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## A3.6 Enhanced planning and operational coordination between NCCs in different Member States

The possible evolutions of EUROSUR are expected to enhance planning and operational coordination between NCCs in different Member States. The extent to which each option will deliver this expected benefit has been estimated via the following indicators:

[114] Source: estimated by EBCGA.

[115] Source: estimated by EBCGA on the basis that all **relevant** assets participating in border surveillance and or border control of external borders of relevance to EU level operations should be reported under Option 4.3.

- The extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) and EBCGA on a regular basis (outside JO);
- The extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations);
- The extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section; and,
- The extent of coordination of daily surveillance activities at multilateral level (within and outside joint operations) by type of border section.

Table A3.6 presents the baseline value, maximum value of such indicators as well as the estimated operational benefits brought by each of the different options.

*Table A3.6 Operational benefit: Enhanced planning and operational coordination between NCCs in different Member States*

| | **Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside JO)** | **Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations)** | **Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section** | **Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section** |
|---|---|---|---|---|
| **Baseline values**[116] | 0% | 0% | 0% | 0% |
| **Maximum values**[117] | 100% | 100% | 100% | 100% |
| **Option 1**<br>**Option 1.1**<br>**Option 2**<br>**Option 2.1***<br>**Option 3**<br>**Option 3.1*** | Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions as per Art. 10.5(a) of Regulation 2013/1052 | | No effect | |
| **Option 4.1** | Operational plans for operations on territory of third countries to be agreed with neighbouring EU MS. (Art. 75.3) of EBCG Proposal Regulation | | Potential for improvement if a model third country agreement and implementing act details the information layers in specific | |

[116] Source: Assumption based on the analysis of the current EUROSUR Regulation

[117] Source: Under the proposed regulation Member States will share assets participating in joint operations and other asset of relevance for coordination of border control and border surveillance activities at national, bilateral or multilateral level.

| | Extent to which NCC's operational plans are shared with neighbouring NCCs (including third countries) & EBCGA on a regular basis (outside JO) | Extent to which local and regional operational plans are shared with NCC's operational management level (excluding joint operations) | Extent of coordination of daily surveillance activities at bilateral level (excluding joint operations) by type of border section | Extent of coordination of daily surveillance activities at multilateral level (outside joint operations) by type of border section |
|---|---|---|---|---|
| **Option 4.11** | | | situational picture (Art. 25.4 of EBCG Proposal Regulation | |
| **Option 4.2** | Only deployment plans are shared in cases of joint operations, pilot projects and rapid interventions as per Art. 10.5(a) of Regulation 2013/1052 | | No effect | |
| **Option 4.21** | | | | |
| **Option 4.3** | 100% for border sections with high and critical impact levels; | | | |
| **Option 4.31** | 100% for border sections with high and critical impact levels; | | | |

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## A3.7 Improved reaction capabilities from Border Guard Agencies and EBCGA

The possible evolutions of EUROSUR are expected to improve the reaction capabilities of national Border Guard Agencies and the EBCGA. The assessment of the extent to which each option will deliver this expected benefit has been estimated via the following indicators:

- The number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours
- The Size of the areas covered by joint patrols (Km2) in high risk areas
- The number of interceptions made following EFS detections

Table A3.7 presents the baseline value, maximum value of such indicators as well as the estimated operational benefits brought by each of the different options.

*Table A3.7 Operational benefit: Improved reaction capabilities from Border Guard Agencies and EBCGA*

| | Number of multipurpose aerial surveillance coordinated at multilateral level / Number of overall patrolling hours | Size of the area covered by joint patrols (Km2) in high risk areas | Number of interceptions made following EFS detections |
|---|---|---|---|
| **Baseline values**[118] | 1934 hours | 784,870 km$^2$ | 127 |
| **Maximum values**[119] | Greater than 2000 hours | Greater than 800,000 km$^2$ | Greater than 500 |
| **Option 1** | 1934 hours | 784,870 km$^2$ | 127 |
| **Option 1.1** | 1934 hours | 784,870 km$^2$ | 127 |
| **Option 2** | at least 2000 hours | at least 800,000 km2 | at least 250 |
| **Option 2.1*** | Greater than 2000 hours | Greater than 800,000 km2 | Greater than 250 |
| **Option 3** | at least 2000 hours | at least 800,000 km2 | at least 250 |
| **Option 3.1*** | Greater than 2000 hours | Greater than 800,000 km2 | Greater than 250 |
| **Option 4.1** | at least 2000 hours | at least 800,000 km2 | at least 500 |
| **Option 4.11** | Greater than 2000 hours | Greater than 800,000 km2 | Greater than 500 |
| **Option 4.2** | at least 2000 hours | at least 800,000 km2 | at least 500 |
| **Option 4.21** | Greater than 2000 hours | Greater than 800,000 km2 | Greater than 500 |
| **Option 4.3** | Greater than 2000 hours | Greater than 800,000 km2 | Greater than 250 |
| **Option 4.31** | Greater than 2000 hours | Greater than 800,000 km2 | Greater than 250 |

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[118] Source: EBCGA analysis from EUROSUR system

[119] Source: estimated by EBCGA.

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