

UK example

ICAO	
Template for good practice examples of environmental assessment (Draft V1.0)	
<i>Note: The italicized text is for guidance only and merely indicates the kind of information that is likely to be of value for users of the ICAO assessment guidance. You do not need to cover all points if some are not applicable to your case study.</i>	
Organisation/Company: <i>(The name of the body that undertook or sponsored this assessment)</i> NATS (UK Air Navigation Service Provider)	
Project Title: <i>(The title of the project being assessed)</i> SESAR Operational Focus Area: Full Implementation of P-RNAV in TMA - Point Merge in the London TMA	Date of Assessment: February 2012
ASBU Module Code(s) ⁵ :	State's Action Plan ⁶ :
Project Description: <i>(Briefly describe the project or proposed operational change to be assessed for its environmental implications; Please when possible, use schematics for illustration.)</i>	
<p>Optimisation of airspace use and traffic management for complex TMAs through the use of Point Merge techniques coupled with P-RNAV navigation capability.</p> <p>P-RNAV CDAs in high density traffic.</p> <p>Continuous Climb Departures enabled by the enhanced horizontal performance of P-RNAV.</p> <p>Impact on preferential noise routes upon transition from conventional to P-RNAV procedures, due to the turning performance linked to each respectively.</p>	
Reason for the environmental assessment: <i>(Explain why the environmental assessment was undertaken and, if applicable, include any specific regulation, policy, or rule that requires the assessment to be undertaken)</i>	
<p>SESAR has environmental targets at the ECAC level and therefore SESAR concepts are required to carry out environmental assessments in line with the SESAR Environmental Reference Material to show the concept's contribution to the ECAC level environmental targets. In addition, at the National level, the UK Civil Aviation Authority requires that airspace changes covered by its airspace change guidance (CAP725) conduct an environmental assessment</p>	

⁵ **APTA**-Approach procedures including vertical guidance; **WAKE**-Wake vortex; **RSEQ**-AMAN / DMAN; **SURF**-A-SMGCS, ASDE-X; **ACDM**-Airport CDM; **FICE**-Increased efficiency through ground - ground integration; **DAIM**-Digital AIM; **AMET**-Meteorological information supporting enhanced operational efficiency; **FRTO**-En route Flexible Use of Airspace and Flexible routes; **NOPS**-Air Traffic Flow Management; **ASUR**-ADS-B satellite based and ground based surveillance; **ASEP**-Air Traffic Situational awareness; **OPFL**-In-Trail procedures (ADS-B); **ACAS**-ACAS improvements; **SNET**-Ground based safety nets; **CDO**-Continuous Descent Operations, PBN STARs; **TBO**-Data link en-route; **CCO**-Continuous Climb Operations

⁶ <http://www.icao.int/environmental-protection/Pages/action-plan.aspx>

Client or competent Authority: *(Explain which body the assessment will be submitted to for their approval or decision making. Was the assessment internal or public? What audiences is it intended to inform?)*

The environmental assessment will be submitted to the SESAR Joint Undertaking as part of the validation report for the Point Merge validation activities.

Should the Point Merge concept be implemented as part of an airspace change in the UK, NATS would submit details of the environmental assessment as part of the airspace change documentation required by the UK Civil Aviation Authority set out in its airspace change guidance (CAP725).

Assessment Approach: *(This section asks for a brief description of your application of the ICAO guidance for each main assessment step. If a step was not undertaken, give a brief explanation of why the step was omitted or is not applicable to this assessment example. Please complete each section individually. In this box you can explain why the ICAO approach to assessment was chosen. If you did not apply the ICAO methodology, please explain how your methodology differed from the ICAO approach.)*

The environmental assessment approach for this concept followed the SESAR environmental front office (Project 16.6.3) guidance material for environmental assessment (SESAR's Environmental Reference Material) which embodies the ICAO guidance, specifically tailored for SESAR operational concepts

Preparatory Work: *(Briefly explain the relevant background activities that have been undertaken to prepare for the assessment. This may include decisions or processes such as, deciding that an environmental assessment is required, identifying the assessment client, gathering base data, deciding on years to be assessed, deciding on assessment methods or standards to be applied. There is no need to cover all possible information, simply provide a sufficient explanation of the reasons why the assessment steps and approach were selected. How did you establish which rules, regulations, or standards applied to the assessment?)*

The SESAR environmental front office team carried out an initial screening of all SESAR projects to identify those where an environmental impact might be expected. Once the projects with potential environmental impacts were identified, each project was assigned an environmental focal point from the SESAR environmental front office team. That focal point was charged with making contact with the project to encourage them to make the necessary provisions for conducting an environmental assessment as part of their validation exercise plans

Describe the proposed [operational] change, its purpose and alternatives: *(Explain what will change as a result of the proposal to be assessed – this may repeat the information in the earlier project description. Explain why this project is required and what purpose it serves, and what alternatives have been considered. Information on why these alternatives were rejected is useful but not essential)*

Optimisation of airspace use and traffic management for complex TMAs through the use of Point Merge techniques coupled with P-RNAV navigation capability.

P-RNAV CDAs in high density traffic.

Continuous Climb Departures enabled by the enhanced horizontal performance of P-RNAV.

Impact on preferential noise routes upon transition from conventional to P-RNAV procedures, due to the turning performance linked to each respectively

The project is required to generate benefits of the concept in terms of fuel efficiency, through the increased provision of Continuous Descent Approaches and Continuous Climb Departures. CDAs will be directly designed into the P-RNAV approach routes.

The P-RNAV approach routes should also be designed so as to enable design of efficient CCDs. Use P-RNAV routes with CDAs can enable vertical stack holds to be moved higher and further away from the runway, which

frees up altitudes/levels for CCDs to be designed.

CDA's will improve the fuel efficiency for TMA arrivals and CCDs will improve the fuel efficiency for TMA departures. The alternatives that CCDs and CDA's will replace are stepped climbs and descents

Describe the scope and extent of the assessment: *(How was it decided that this assessment was needed – “screening”. Describe the impacts to be assessed, for example, aircraft noise, CO₂ or NO_x emissions, climate impacts or air quality impacts. Explain the decision making process that determined this scope and the level of detail to be used in the assessment – “scoping”. Also describe any formal processes to consult upon or agree on the scope, for example, via a nominated competent authority if applicable. Explain, for example, if the scope was set using expert judgement or a pre-assessment checks or information gathering. Also describe how the decision to undertake a more detailed assessment, or not, was taken. How were the base-case and proposed case(s) determined, why were particular years chosen?)*

The SESAR environmental front office team carried out an initial screening of all SESAR projects to identify those where an environmental impact might be expected. This initial screening was based on high level guidance on the potential for a concept to have environmental impacts contained in the SESAR environmental reference material. From this initial screening the project was asked to describe in some detail their concepts and as a result of that discussion it was decided that the implementation of point merge in a complex TMA would have the potential to impact noise and emissions performance. This was then the basis for the scope of the analysis (noise and emissions).

The project set the scope, baseline and extent of the assessment in accordance with the following validation scenario grid:

		Traffic scaled up to 2015 levels			
		Variable Arrival Management efficiency			
		Easterly Runway Ops		Westerly Runway Ops	
		Northabout Atlantic Operations	Southabout Atlantic Operations	Northabout Atlantic Operations	Southabout Atlantic Operations
Current Day Operations	Nominal scenarios only	Run 1	Run 2	Run 3	Run 4
Point Merge centric TMA structure		Run 5	Run 6	Run 7	Run 8
PRNAV route structure		Run 9	Run 10	Run 11	Run 12
Concept Design #1					
Concept Design #2					

Describe the assessment itself: *(Describe any standards or mandatory requirements for the assessment to be undertaken together with the methodology, monitoring or model used to determine the extent of the environmental impacts for the proposal. Give an indication of the extent or time-horizons that were chosen (if not already described earlier). Was quality management applied? For example, was there a process to ensure that the input data for the environmental assessment was consistent with other parallel assessments? Were interdependencies encountered and how did you address any trade-off issues? Was the expertise for this assessment available from internal resources or procured externally?)*

The environmental assessment for this concept followed the SESAR environmental front office (Project 16.6.3) guidance material which required, at the time, emissions to be evaluated using AEMIII and noise to be modelled using INM. The validation planning for the project was where the assessment was planned and that validation plan was out together in line with SESAR guidelines. SESAR's environmental front office team were consulted as part of the development of the validation plan to ensure that the assessment was being prepared for and planned in line with the ERM. At the National level, the UK CAA requires assessments of fuel burn and emissions to be carried out using the NATS KERMIT tool, which the CAA has audited and authorised for assessments.

Describe the results and how they were communicated: (Explain in general terms what the results of the assessment were, how this was used, for example to what extent it informed decision making or approval for the project. Was it produced as a draft for consultation or simply as a final report? Were the results validated or verified in any way – for example were the assessment processes or quality management processes independently audited? Did the results feed into a wider process, for example, a business case assessment?)

The environmental assessment results were communicated as part of the overall Point Merge in the London TMA validation report.

Lessons learned: (Explain here what worked well, what could be improved, what you would do differently next time –If applicable please explain if you think the ICAO assessment guidance could be improved and in what way. If you did not use the ICAO methodology can you identify aspects of your methodology that could provide benefits to future iterations of the ICAO guidance? What aspects of the ICAO guidance would you apply to your own methodology for future assessments?)

Comments: (Optional - Offer here any other advice or hints that may be of value to others using ICAO environmental assessment guidance.)