AIRPROX REPORT No 2014138

Date/Time: 16 Aug 2014 0840Z (Saturday)

Position: 5159N 00117W (9nm N Oxford)

Airspace: Oxford AIAA (*Class*: G)

	Aircraft 1	*Aircraft 2*
Type:	ATR42	PAC 750XL
Operator:	CAT	Civ Club
Alt/FL:	3800ft NK	~ 3000ft NK
Conditions:	VMC	VMC
Visibility:	>10km	NK
Reported Separation:	100ft V/0.5nm H	2-3nm H
Recorded Separation:	500ft V/0.4nm H	

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE ATR42 PILOT reports making a radar vectored ILS approach to Oxford RW19. The blue and white aircraft had navigation, anti-collision and strobe lights on, as was the SSR transponder with Modes A, C and S selected. The aircraft was equipped with TCAS II. The pilot was operating under IFR in VMC and had been offered a Traffic Service by Oxford Radar, which he accepted. He had received 'multiple Traffic Information' from ATC during the approach, many of which were against non-transponding contacts. During the base turn, given at about '10 mile range', Traffic Information was passed on a 'parachuting aircraft' in the climb, east of the final approach track. The ATR42 pilot was cleared to descend from 4000ft to 3000ft. Whilst established on heading 090°, passing 3800ft at a descent rate of 500fpm and 160kt, a TCAS alert was received on traffic in the left 11 o'clock, range 4nm, 500ft below and climbing, followed about 5sec later by a 'Climb, Climb' RA, with a commanded climb rate of 2000fpm. A climb was initiated and the Pilot Monitoring called "TCAS RA" on the radio. After about 5-10sec the RA changed to 'Monitor Vertical Speed' with a 0-500fpm band. About 5sec after this the crew received a second TCAS RA 'Climb, Climb', with a commanded climb rate of 2000fpm. The RA cleared 5-10sec later with 'Clear of Conflict'. The conflicting aircraft was not seen. The pilot noted that a short base-leg, at a range of about 10nm from Oxford, combined with the other aircraft climbing quickly gave them very little time to see the other aircraft or assess the situation.

He assessed the risk of collision as 'High'.

THE 750XL PILOT reports conducting 'normal skydiving ops'. The predominantly white aircraft had strobe lights selected on, as was the SSR transponder with Modes A and C. The aircraft was not equipped with an ACAS or TAS. The pilot was operating under VFR in VMC, listening out on 'London Control' and 'Hinton Traffic' on 2 radios. Whilst passing 3000ft, at 90kt, in a climbing left turn, the rearward-facing parachutist seated next to him pointed out a white and blue twin-engine, high-wing aircraft in the right 4-5 o'clock at about the same level and flying towards them. He increased his rate of turn to the left and rolled out heading northeast to track back towards his airfield.

Not the subject 750XL

He assessed the risk of collision as 'Low' to 'Medium'.

THE OXFORD RADAR CONTROLLER: a report was not received from the Oxford controller.

Factual Background

The weather at Brize Norton and Oxford was recorded as follows:

```
METAR EGVN 160850Z 26006KT 9999 FEW024 16/10 Q1021 BLU NOSIG
METAR EGTK 160850Z 25006KT 9999 SCT049 15/11 Q1021
```

A transcript of the Oxford Radar RTF is reproduced below:

From	To	Transcript
ATR42	Oxford	Oxford hello [ATR42 C/S] A T R forty three[1], information (0831:30) November, one zero two one, descending six thousand feet Q N H, one zero two one, direct to the Oxford
Oxford	ATR42	[ATR42 C/S] Oxford Radar good morning (0831:40) ????? information is November, Q N H one zero two one is correct, vectoring for the I L S approach runway one nine
ATR42	Oxford	radar vectors I L S two er one nine [ATR42 C/S] (0831:50)
Oxford	ATR42	[ATR42 C/S] leaving controlled airspace in three miles, Traffic Service, fly heading three four five (0832:00)
ATR42	Oxford	fly heading three four five [ATR42 C/S]
		other traffic
Oxford	ATR42	(0836:30) [ATR42 C/S] descend to altitude three thousand feet
ATR42	Oxford	descend altitude three thousand feet [ATR42 C/S] (0836:40)
Oxford	ATR42	(0837:40) [ATR42 C/S] there's traffic in your twelve o'clock three miles er no- one thousand five hundred feet at least below your cleared level
ATR42	Oxford	looking (0837:50) [ATR42 C/S]
Oxford	ATR42	[ATR42 C/S] turn right heading three six zero degrees
ATR42	Oxford	(0838:20) right three six zero degrees [ATR42 C/S]
Oxford	ATR42	(0839:00) and [ATR42 C/S] traffic in your two o'clock range of five miles indicating two thousand two hundred feet climbing, it's [parachuting site] parachute dropper, turn right heading one one (0839:10) zero degrees
ATR42	Oxford	right one one zero degrees [ATR42 C/S]
Oxford	ATR42	[ATR42 C/S] that previously called traffic is east of you by two (0839:50) miles, three thousand feet, continue the right turn heading one six zero
ATR42	Oxford	TCAS RA
Oxford	ATR42	roger turn south
Oxford	ATR42	[ATR42 C/S] that aircraft's indicating three thousand two hundred feet in the climb, suggest a turn (0840:10) er due south, he's in a left turn
ATR42	Oxford	turn south [ATR42 C/S]
ATR42	Oxford	(0840:20) TCAS RA
Oxford	ATR42	roger
Oxford	ATR42	[ATR42 C/S] I'll vector you back round then I will be speaking to London about that they're supposed to stay in a dedicated area and he's gone way outside of (0840:50) it
ATR42	Oxford	er [ATR42 C/S] we're clear of traffic, we're heading er one eight zero and er altitude four thousand three hundred
Oxford	ATR42	[ATR42 C/S] roger (0841:00) turn right again heading er three four zero degrees
ATR42	Oxford	right heading three four zero degrees [ATR42 C/S] (0841:10)

The Oxford Radar controller issued a total to 8 heading changes to the ATR42 pilot over the next 8min whilst vectoring for 2 further repositions to the localizer.

[1] An ATR 42, 300 series, commonly referred to as ATR 43 although from the ATR 42 family of regional airliners.

Analysis and Investigation

CAA ATSI

ATSI had access to reports from both pilots together with area radar recordings and RTF and transcript of the Oxford Radar frequency.

The ATR42 pilot was operating under IFR on a flight to Oxford and was in receipt of a Traffic Service from Oxford Radar. The 750XL pilot was operating under VFR, conducting parachute dropping while displaying SSR code 5007 (displayed as HINTON on the screenshots) and was in contact with Hinton Radio whilst listening out on TC Cowly East.

At 0831:27, the ATR42 pilot contacted Oxford Radar, descending to 6000ft. The Oxford Radar controller informed the ATR42 pilot that it would be a Traffic Service outside controlled airspace and instructed the ATR42 pilot to fly heading 345° in order to position for the ILS RW19. At 0835:30, the ATR42 pilot was instructed to descend to 3000ft and subsequently instructed to turn right heading 360°, see Figure 1 (0838:16).

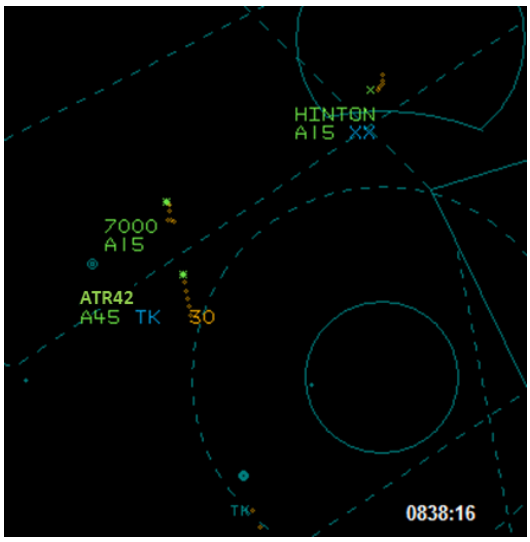

Figure 1

At 0839:00, the ATR42 pilot was informed of, "*traffic in your two o'clock range of five miles indicating two thousand two hundred feet climbing, it's Hinton in the Hedges parachute dropper, turn right heading one one zero degrees*". The heading was read back correctly, see Figure 2.

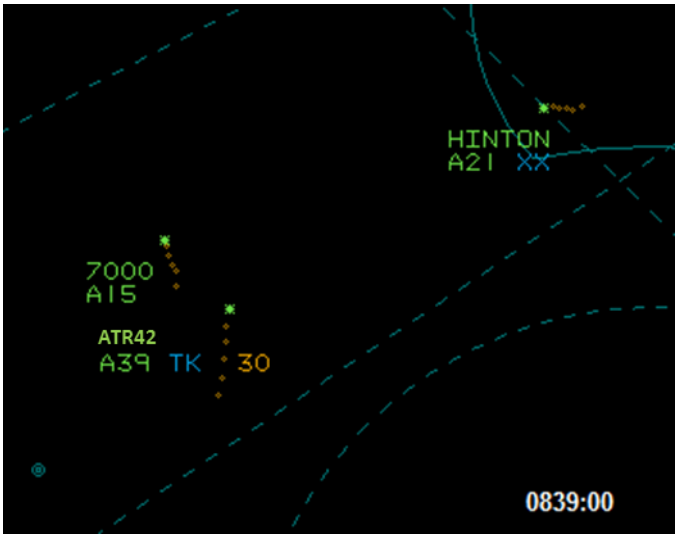

Figure 2

At 0839:40, the Oxford Radar controller informed the ATR42 pilot, "*that previously called traffic is east of you by two miles three thousand feet continue the right turn heading one six zero*", see Figure 3.

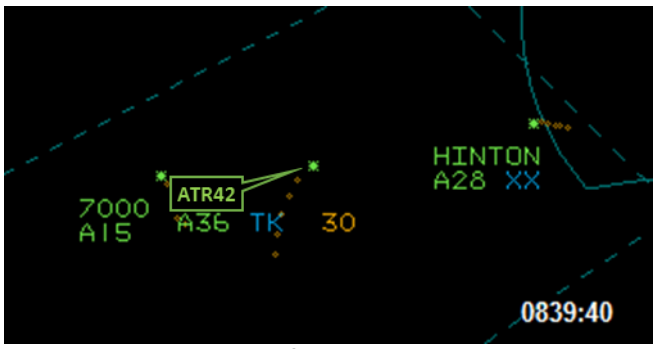

Figure 3

The ATR42 pilot reported a TCAS RA at 0839:54 (see Figure 4) and the controller responded, "*turn south*", before transmitting "[ATR42 C/S] *that aircraft's indicating three thousand two hundred feet in the climb suggest a turn er due south he's in a left turn*". The ATR42 pilot read back "*turn south* [ATR42 C/S]".

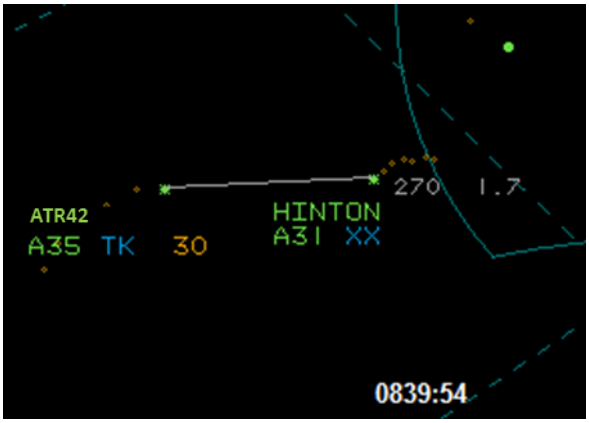

Figure 4

The two aircraft continued to converge laterally as the ATR42 pilot was climbing, see Figure 5.

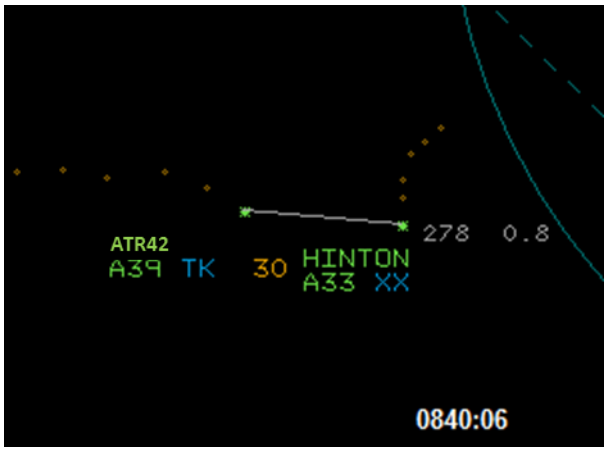

Figure 5

At 0840:20, the ATR42 pilot again reported a TCAS RA to which the Oxford Radar controller replied, "*Roger*", see Figure 6.

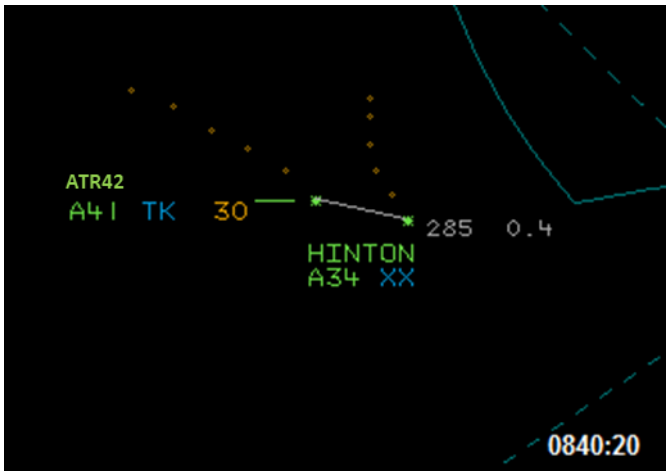

Figure 6

CPA occurred at 0840:23 when the two aircraft were 0.4nm apart, with the ATR42 500ft above the 750XL, see Figure 7.

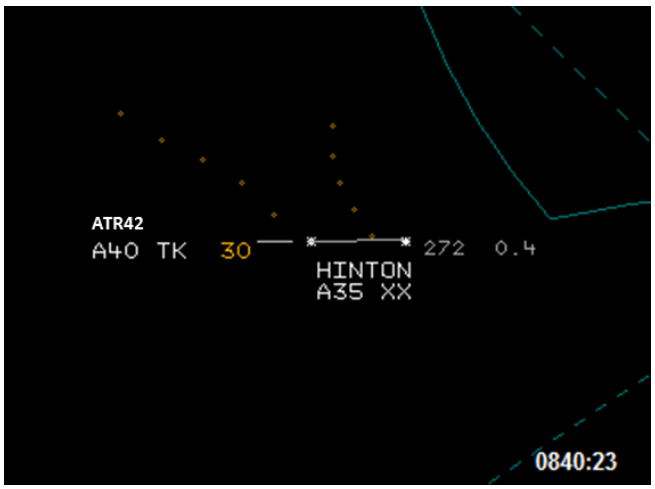

Figure 7

The Oxford Radar controller then informed the ATR42 pilot that they would be vectored again for the approach and that the parachute aircraft was supposed to stay in a dedicated area but was outside that. The ATR42 pilot reported clear of traffic heading 180° at 4300ft.

The Oxford Radar controller initiated a phone call to LTC which was answered at 0843:18 by the TC North Supervisor. The Oxford controller stated that Oxford had a 3nm buffer against Hinton in the Hedges which was part of the TC agreement with Hinton and that recently aircraft had been outside the 3nm area. In the letter of Agreement between NATS, Hinton skydiving centre, Birmingham ATC and Oxford ATC there is an area of Designated Airspace defined as follows:

> 'That airspace within the DTY CTA within a 3nm radius of Hinton-in-the-Hedges, position 52 01 36N 001 12 16W excluding that portion of airspace contained within a circle of 7nm radius of Weston-on-the-Green position 51 52 46 N 001 13 20 W, the centre of EG D129.
>
> *NOTE: The Drop Zone has a published radius of 1.5nm (AIP ENR).'*

The Designated Airspace can be seen marked by a steady blue line in the top right hand corner of Figure 1 and is the only steady blue line in the subsequent screenshots. The section listing Hinton's associated responsibilities states that:

> 'f)All parachuting and associated aircraft operation is to be contained within the Designated Area whilst within Controlled Airspace...'.

Oxford's responsibilities under the agreement include:

> '10.3 Subject to ATSOCAS Oxford ATC shall endeavour where possible to avoid the Drop Zone by informing aircraft of the activation of Hinton-in-the-Hedges. Oxford ATC shall warn any aircraft on frequency who appear to be operating in the vicinity of Hinton during notified operational hours of the likely activity of Hinton-in-the-Hedges, workload permitting.'

The letter of agreement only requires the Hinton parachuting aircraft to stay within the Designated Area when they are above FL65, which is the base of controlled airspace. The vectors the Oxford controller gave the ATR42 pilot were designed to position the aircraft onto the ILS whilst remaining clear of the Designated Area. The Oxford Radar controller was providing the ATR42 pilot with a Traffic Service (in accordance with Oxford's entry in the UK AIP, Oxford's 'standard service' is a Traffic Service) and twice passed traffic information on the 750XL. The controller was not required to achieve deconfliction minima and the ATR42 pilot remained responsible for collision avoidance (although a controller should not knowingly introduce a confliction when providing headings for positioning). The Oxford Radar controller expected that the Hinton in the Hedges parachuting aircraft would stay in the Designated Area although the aircraft was below the base of controlled airspace.

When the ATR42 pilot reported the first TCAS RA the Oxford Radar controller passed further instructions and traffic information to the ATR42 pilot on the 750XL. CAP493, the Manual of Air Traffic Services, Section 1, Chapter 10, Paragraph 5 states:

> '5.2 When a pilot reports a TCAS RA, controllers shall not attempt to modify the aircraft's flight path or reiterate previously issued instructions, until the pilot reports "Clear of Conflict". Once an aircraft departs from an ATC clearance in compliance with an RA, or a pilot reports an RA, the controller ceases to be responsible for providing separation between that aircraft and any other aircraft affected as a direct consequence of the manoeuvre induced by the RA. The controller shall resume responsibility for providing separation for all the aircraft affected when:
> (1) The controller acknowledges a report from the flight crew that the aircraft has resumed the current clearance; or
> (2) The controller acknowledges a report from the flight crew that the aircraft is resuming the current clearance and issues an alternative clearance which is acknowledged by the flight crew.
>
> 5.3 The passing of traffic information by controllers to aircraft conducting, or affected by a TCAS RA, is not proscribed, but such information has, if provided inappropriately, the potential to be misheard or to distract flight crews during a period of very high workload. Consequently, controllers should not routinely pass traffic information to aircraft conducting RA manoeuvres, or other aircraft affected by such manoeuvres. Nevertheless, there may be circumstances where the passing of traffic information is justified; consequently, controllers may provide traffic information under the following circumstances:
> (1) To aircraft conducting an RA manoeuvre if it is considered essential for flight safety (e.g. information on aircraft which are known to be in close proximity that are not transponding Mode C information).
> (2) To other aircraft affected by an RA manoeuvre if judged necessary by the controller (e.g. in airspace where the carriage and operation of TCAS and/or SSR transponders is not mandatory).'

The Oxford Radar controller was vectoring the ATR42 pilot with the expectation that the 750XL pilot would remain in the Designated Area for Hinton in the Hedges despite the 750XL pilot being below the base of controlled airspace. The ATR42 pilot was ultimately responsible for his collision avoidance and the Oxford Radar controller provided traffic information twice on the 750XL pilot, fulfilling the requirements of both the CAP774 and the responsibilities allocated to Oxford under the Letter of Agreement with LTC, Birmingham and Oxford.

Although it is recognised that the Oxford Radar controller was providing a Traffic Service to the ATR42 pilot and complied with both the requirements of the service and the letter of agreement, it is recommended that Oxford ATC either agree a course of action with Hinton in the Hedges whereby aircraft conducting parachuting remain in the designated area of airspace below the base of controlled airspace, or ensure that controllers at the unit are familiar with the exact nature of the existing agreement between LTC, Birmingham, Hinton and Oxford so that a risk of collision

is not inadvertently introduced to aircraft being vectored into Oxford, due to the assumption that Hinton parachuting aircraft will remain in the Designated Area below the base of controlled airspace.

It is further recommended that Oxford ATSU issue a reminder of the requirements for controllers following the declaration of a TCAS RA by pilots.

UKAB Secretariat

The ATR42 and PAC 750XL pilots shared an equal responsibility for collision avoidance and not to fly into such proximity as to create a danger of collision[2]. If the incident geometry is considered as converging then the 750XL pilot was required to give way[3]. If the incident geometry is considered as overtaking then the 750XL pilot had right of way and the ATR42 pilot was required to keep out of the way of the other aircraft by altering course to the right[4].

Summary

An Airprox was reported when an ATR42 and a PAC 750XL flew into proximity at 0840 on Saturday 16th August 2014. Both pilots were operating in VMC, the ATR42 pilot under IFR, in receipt of a Traffic Service from Oxford Radar, and the 750XL pilot under VFR, listening out on a London ACC TC frequency.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, a transcript of the relevant RT frequency, radar photographs/video recordings and a report from the appropriate ATC authority.

Board members first considered the pilots' actions. The ATR42 pilot was in receipt of a Traffic Service and was receiving radar vectors to the RW19 ILS. He followed the vectors issued by the Oxford controller and eventually received two TCAS RAs as the aircraft flew into proximity. Members noted that the ATR42 pilot shared responsibility for collision avoidance with the 750XL pilot and, although the pilot did not gain visual contact with the 750XL, he was passed Traffic Information on 2 occasions before the first RA and once afterwards. For his part, the 750XL pilot was operating in Class G airspace with the intention of climbing into CAS at base FL65. He was not in receipt of an Air Traffic Service but was listening out on both radios to frequencies which would be used during his climb and subsequent recovery. He did not see the ATR42 until it was pointed out to him in the right 4-5 o'clock by the rear-facing parachutist seated next to him. Members agreed that the 750XL pilot would have been far better served by making RT contact with Oxford whilst conducting his flight in the immediate vicinity of the Oxford RW19 centre-line at a height which placed him close to aircraft descending to the glide-path. This would have allowed all parties to establish a greater degree of situational awareness and promote the safe, efficient and timely flow of traffic inbound to Oxford, in the Oxford AIAA.

The Oxford controller had provided radar vectors to the ATR42 pilot, and members discussed whether the ATR42 had been vectored into conflict with the 750XL. It was apparent that the right turn on to a heading of 100° had been issued before the 750XL pilot had started his left turn. As such, the Board considered that the Oxford controller's vector was not into conflict at that time. Indeed, it was considered likely that the Oxford controller was operating under the assumption that the 750XL pilot was required to remain within the Hinton Designated Area and that he would turn right, away from the ATR42 track. However, the Board noted that this requirement only applied inside CAS (above FL65) and that the 750XL was entitled to climb up to FL65 in whichever manner he chose. As a result, the Oxford controller's assumption was flawed and members agreed that this false expectation was contributory to the Airprox because it had led the controller to discount the fact that the 750XL might

[2] Rules of the Air 2007 (as amended), Rule 8 (Avoiding aerial collisions).
[3] ibid., Rule 9 (Converging).
[4] ibid., Rule 11 (Overtaking).

turn left when he was providing vectors to the ATR42. The Board agreed with the ATSI recommendation that clarification and updating of the Hinton/Oxford Letter of Agreement and associated responsibilities would be beneficial to all associated operators and controllers.

The Board discussed the cause and risk and were of the opinion that this Airprox had arisen due to a conflict in Class G airspace where effective and timely actions had been taken by the ATR42 pilot to prevent aircraft collision, albeit due in the main to the ATR42's TCAS.

In the course of the discussion, members noted that the declaration of 'TCAS RA' by a pilot was a formal declaration that the pilot was now responsible for collision avoidance and that the controller no longer held that responsibility. Similarly, the declaration of 'Clear of conflict', represented the formal handover of collision avoidance responsibility back to the controller. Members reiterated the importance of controllers not issuing instructions after a declaration of 'TCAS RA' until the declaration of 'Clear of conflict'. It was also noted that a TCAS RA event fell under the provisions of the Mandatory Occurrence Reporting Scheme, that the Oxford controller was required to report such, but that CAA Safety Data had not yet received a report from them.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G.

Contributory Factor: The Oxford controller expected the 750XL pilot to remain within the Hinton Designated Area.

Degree of Risk: C.

ERC Score[5]: 50.

[5] Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.