



**NINTH MEETING OF THE ASIA PACIFIC ACCIDENT INVESTIGATION
GROUP (APAC-AIG/9)**

(27-28 October 2021 on Virtual Platform at 11.00 hrs. Bangkok Time UTC+7)

Agenda Item 4: Enhancing Accident Investigation Capabilities

**RESEARCH INTO THE REASONS WHY FINAL REPORTS ARE NOT
PUBLICLY AVAILABLE**

(Presented by France and Singapore)

SUMMARY

This working paper addresses the research and results, undertaken by the AIGP WG-20, on the reasons why many Final Reports are not publicly available for 1 157 fatal accidents involving civil-operated aircraft with a mass over 5 700 kg, between 1990 and 2016.

Actions by the APAC-AIG is in paragraph 2.1.

1. INTRODUCTION

1.1 The timeliness of publication of Final Reports ensures the effective distribution of safety information and lessons learned arising from accident or incident investigations. The preferred way to make safety lessons publicly available should remain the publication of a Final Report and/or yearly interim statement(s) by the State conducting the investigation.

1.2 With the aim to improve the timeliness of accident and incident investigations and the release of Final Reports, Working Groups (WG-6 & WG-20) were created for the ICAO Accident Investigation Panel (AIGP). WGs performed a worldwide review of 1 157 fatal accidents to civil-operated aircraft with a MCTOM (Maximum Certificated Take-Off Mass) of over 5 700 kg, between 1990 and 2016. WGs considered Final Reports concerning these 1 157 accidents on publicly available websites (AIAs or ICAO e-Library of Final Reports <https://www.icao.int/safety/airnavigation/AIG/Pages/E-library-of-Final-Reports.aspx>). In 2017, it was estimated that the ICAO e-Library contained only approximately 400 Final Reports of fatal accidents issued between 1990 and 2016.

1.3 This information was presented to the Air Navigation Commission (ANC) after the third meeting of the AIGP. The ANC was concerned by these statistics and expressed a need for further research into the reasons for 59% of Final Reports not being publicly available. The ANC requested that the AIGP further study the reasons why so many Final Reports were unavailable. The second WG (WG-20) was created to conduct research into the reasons why a large number of Final Reports were not publicly available and, if necessary, proposing amendments to AIG documents and/or the Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) AIG Protocol Questions (PQs). The same database of 1 157 fatal accidents as established was used to ensure consistency. WG-20 coordinated with regional officers in their respective ICAO Regional Offices.

1.4 The 1 157 accidents involved 137 States/Administrations. It was expected that the 116 States/Administrations, having at least one accident in the database with no Final Report found publicly available would be consulted by the WG-20 members. The list of WG-20 members comprised representatives from all ICAO regions¹.

2. DISCUSSION AND RESULTS

2.1 METHODOLOGY

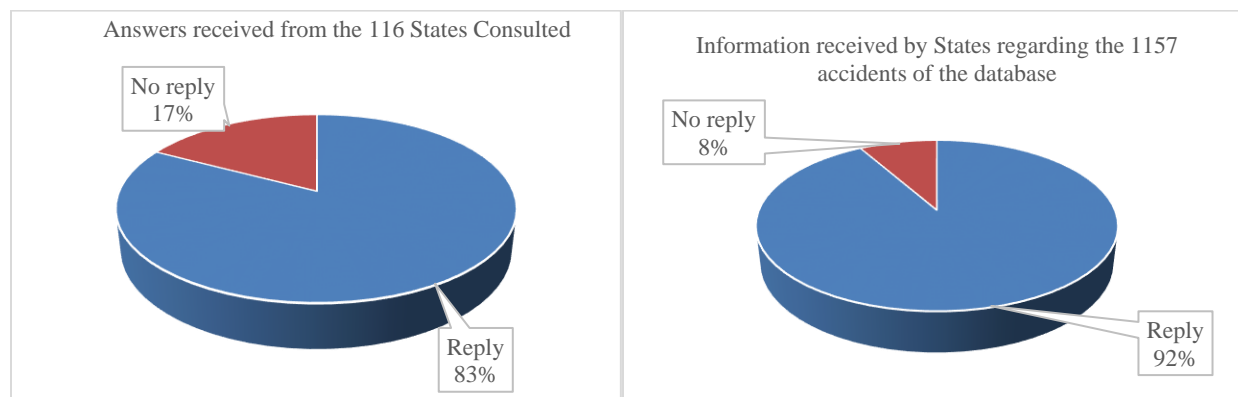
2.1.1 WG-20 decided to develop a survey (see Appendix A) that was not too cumbersome in order to ensure that States/Administrations would not spend too much time answering it, but would provide sufficient information to understand the reasons why the Final Reports were not publicly available.

2.1.2 WG-20 members were in charge of contacting the agencies responsible for conducting civil aircraft accident investigations, [hereinafter referred to as Accident Investigation Authorities (AIAs)] in the States/Administrations of their respective ICAO regions. It was also agreed that for answers that were unclear or had no response from the AIAs, WG-20 members would attempt to call the AIAs concerned to solicit inputs to the survey.

2.1.3 ICAO Head Office also sent the survey to the ICAO regional officers in charge of safety to enlist their help in contacting the AIAs. Coordination was organized to avoid duplicating work when contacting the AIAs.

2.2 RESULTS

2.2.1 The objective of WG-20 was to contact the 116 AIAs having at least one accident in the database with no Final Report found publicly available by WG-6. At the time of writing this working paper, 96 AIAs had replied to the survey, which accounted, including the Final Reports found publicly available by WG-6, for 1 060 accidents (between 1990 and 2016) of the 1 157 accidents in the database. This accounted for about 83% of the States/Administrations consulted and about 92% of the 1 157 fatal accidents in the database.



¹ Philippe Plantin de Hugues (lead) (France), Chow Wah Chong (Singapore), Steven Teo (Singapore), Mohammed Al Khayat (UAE), Francis Regis (Trinidad and Tobago), Frank Hilldrup (USA), Enmanuel Souffront (Dominican Republic), Daniel Barafani (Argentina), Johann Reuss (Germany), Nwanyanwu Henry Aniagolu (Nigeria), Martyn Lunani (Kenya), Yanfeng Mao (China), Monica Yao Xin (China), Simon Lie (ICCAIA), Ariel Shocrón (IFALPA), Stuart Godley (Australia), Giovanni Villalobos (Costa Rica), Bob MacIntosh (ISASI). In addition, Alexey Morozov (Interstate Aviation Committee) provided help to the group and answers for the IAC Contracting States.

2.2.2 Two APAC States/Administrations have yet to provide feedback (accounting for 11 accidents in the database) to the survey.

2.2.3 Analysis of the 1 157 accidents in the database as a result of WG-6 and WG-20 researches

2.2.3.1 As mentioned in 2.2.1, WG-20 was able to solicit responses from 96 AIAs, which accounted, in addition to the Final Reports found publicly available by WG-6, for 1 060 accidents. The results of WG-6 and WG-20 research indicated that 724 Final Reports are publicly available, which accounts for approximately 63% of the 1 157 accidents in the database. That is, we did not yet have confirmation for 97 (1 157 – 724 accidents with reports published – 336 accidents with reasons provided to explain why a report was not published) of the 1 157 accidents in the database. The result of 63% of fatal accidents for which a Final Report is publicly available is better than the result of 41% found by WG-6, given that there are still 24 States/Administrations yet to respond to the survey.

2.2.3.2 It is worth noting that the provision regarding the publication of Final Reports was a Recommended Practice in Annex 13 since 1979 and only upgraded to a Standard in the 8th edition of Annex 13, which became effective in July 1994. The Standard was modified in the 9th edition of Annex 13, which became effective in July 2001, with the term “release” replacing the term “publish”. All these versions did not explicitly indicate the obligation of States/Administrations to make Final Reports publicly available. A clearer version on the obligation to make Final Reports publicly available became effective in the 10th edition of Annex 13, in July 2010. This may explain the lack of published Final Reports for accidents before 1994 (see Appendix C).

2.2.3.3 WG-20 also noticed that some States/Administrations had difficulty finding answers for accidents that happened long ago. It is important to take into account that prior to the internet/website era, which commenced around the 2000s, Final Reports were made publicly available on request and in paper format only, which was costly. Consequently, the ratio of Final Reports made publicly available is also analyzed in terms of periods of time, highlighting the benefit of the internet which make it easier for Final Reports to be publicly available. This may explain the increase in the number of Final Reports found publicly available to 73 % when considering 531 fatal accidents which occurred between 2001 and 2016 (with internet era).

2.2.3.4 It was found that it could be useful to compute the ratio of Final Reports publicly available for the 1 157 accidents in each ICAO region, according to the number of fatalities for each accident and, finally, according to period of time. The tables in Appendix B detail these ratios.

2.2.4 Analysis by States/Administrations

2.2.4.1 PQs of the USOAP CMA, are the primary tool for assessing the level of effective implementation of a State’s safety oversight system. Each PQ in the AIG audit area contributes to an assessment of the effective implementation of one of the eight Critical Elements (CEs). Each PQ is considered satisfactory based on the result of sufficient or documented evidence. The USOAP process, including the PQs, was implemented in 2006.

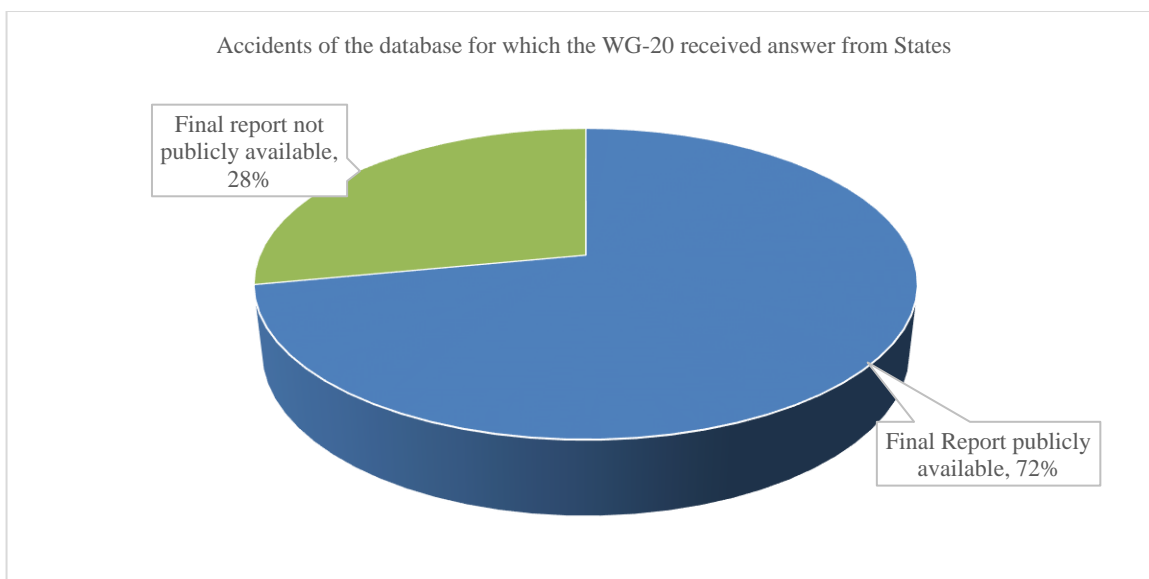
2.2.4.2 It was decided to assess the results of two PQs (6.401 & 6.403) for States/Administrations which had at least one fatal accident listed in the database of 1 157 accidents. These PQs relate to State regulations and AIA procedures that ensure aircraft accident and serious incident investigations are completed and the Final Report made publicly available. The sum of the two PQ assessments (0, 1 or 2) is then compared with the ratio of Final Reports made publicly available by the State. The accidents that were not considered as an Annex 13 event (e.g. an accident involving State aircraft) are not included in the number of accidents for each State.

2.2.4.3 The table in Appendix D contains, for States/Administrations in the APAC region, the number of Final Reports publicly available for civil aircraft fatal accidents (over 5 700 kg) and the results of the assessment of the PQs with regard to the release of Final Reports. In line with the implementation of the USOAP process, the results are assessed for the period 2006 – 2016 only. The main objective of this table is to compare the actual release of Final Reports with the results of the PQ assessment regarding regulations and procedures in place to ensure that all Final Reports are completed and made publicly available.

2.2.5 Analysis of accidents in the database for which WG-20 received a response from States/Administrations

2.2.5.1 As mentioned in paragraph 2.2.1, 96 AIAs replied to the WG-20 survey, which accounted, including the Final Reports found publicly available by WG-6, for 1 060 accidents (between 1990 and 2016) of the 1 157 accidents in the database. Out of the 1 060 accidents, WG-6 and WG-20 found that 724 accident investigations resulted in a Final Report being made publicly available.

2.2.5.2 From the answers received from the States/Administrations in the framework of the WG-20 survey, the group had confirmation that 336 accidents did not have a publicly available Final Report. For these 336 accidents, the States/Administrations decided not to conduct an Annex 13 investigation for 54 accidents which were considered to be outside the scope of Annex 13 (e.g. accident involving State aircraft). Removing these 54 accidents from the 1 060 accidents, this accounts for about 72% (724/1007) of the Final Reports were made publicly available for the remaining 1 006 (1 060-54) accidents (see chart below).



2.2.5.3 For the 1 060 accidents, the tables in Appendix C detail the ratio of Final Reports made publicly available in terms of ICAO region, number of fatalities, and period of time. These tables were developed for consistency with the analysis of the ratio of Final Reports made publicly available for the 1 157 accidents in the database detailed in section 2.2.3.

2.2.6 Analysis of the reasons why Final Reports are not made publicly available

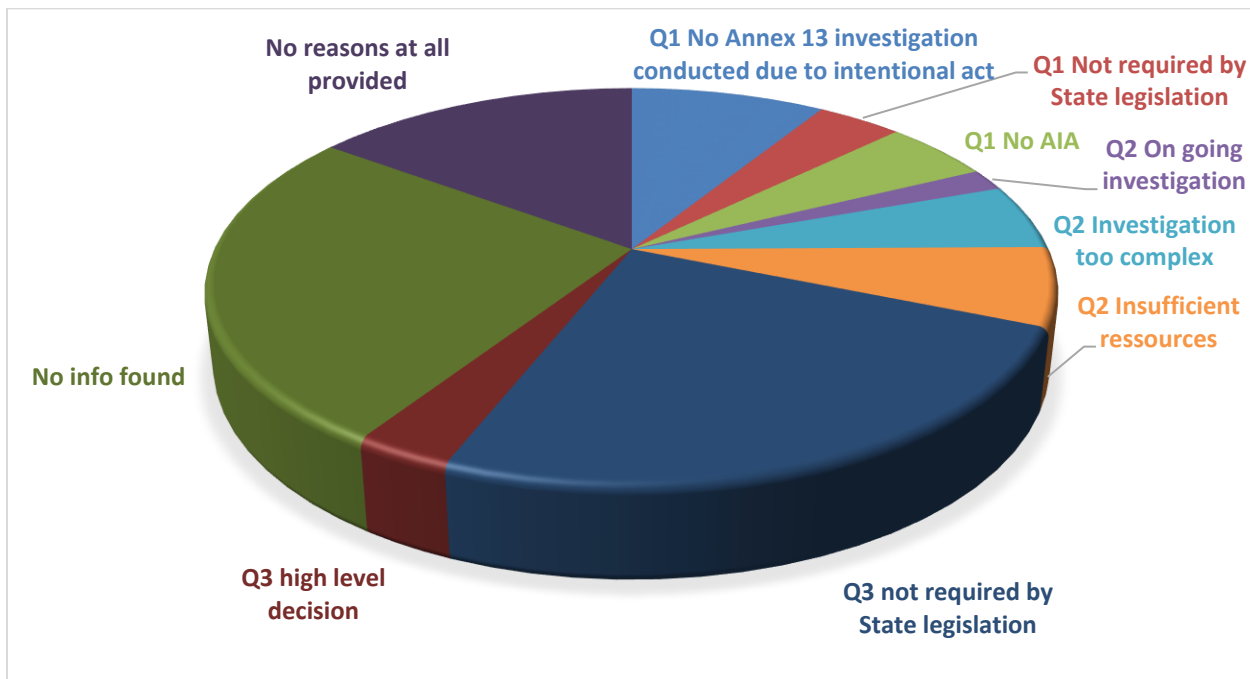
2.2.6.1 An analysis was performed on 282 (i.e. 336-54) accidents with no Final Report publicly available, as defined by the WG-20 survey. The analysis of the reasons provided in the answers to questions

Q1 to Q4, is detailed below. These answers were sorted to identify a single reason for the Final Report not being publicly available for each accident investigated by the State.

2.2.6.2 The table below summarizes the reasons why the abovementioned 282 accidents had no publicly available Final Report.

Reasons why Final Reports are not publicly available	Number of Reports	Ratio
Investigation not started (Q1)	50	18 %
Investigation started but not completed (Q2)	38	13 %
Investigation completed but Final Report not publicly available (Q3)	79	28 %
No reasons, either because State was not able to provide an answer despite research or no reason at all provided by State	115	41 %
Global	282	100 %

2.2.6.3 The chart below further analyze the reasons for Q1 to Q3 in the table above. The tables in Appendix E detail these ratios.



2.3 CONCLUSIONS

2.3.1 Number of Final Reports publicly available

2.3.1.1 In conclusion, the work of WG-20 indicated that the rate of publicly available Final Reports is about 63% of the 1 157 accidents in the database. WG-20 did not have confirmation yet from 24 States/Administrations accounting for 97 of the 1 157 accidents in the database.

2.3.1.2 When considering only the 1 060 accidents involving 96 AIAs that replied to WG-20 questionnaire, the rate of published Final Reports increased to 72 % when excluding accidents involving State flights (for which there is no obligation to conduct an Annex 13 investigation).

2.3.1.3 This figure concerns the database of 1 157 fatal civil aircraft fatal accidents (over 5 700 kg) between 1990 and 2016. This rate would be even better – 81 % - when considering fatal accidents which occurred between 2001 and 2016 (with internet era).

2.3.2 Reasons why Final Reports were not made publicly available

2.3.2.1 For the AIAs that replied to the questionnaire, apart from the accidents relating to intentional act, the other reasons provided for not starting Annex 13 investigations were related to the lack of legislation at the time of the accident or there was no AIA to initiate/conduct an accident investigation. These reasons mainly applied to accidents before 2000. The results highlighted the importance of having permanent AIA structures that would maintain the archives and the records of past investigations and, more importantly, safety lessons learned. Amendments to Annex 13 have led to the establishment of more independent AIAs with the relevant legislation to conduct independent accident investigations and the development of investigation capabilities of the independent AIA or the services of a national CAA.

2.3.2.2 The main reason why Final Reports were issued but not publicly available was due to the lack of legislation requiring the public release of Final Reports. A typical example regarding the issuance of Final Reports is found with the IAC Contracting States. Until 2006, accident investigations that were concluded for almost 100% of the occurrences, Final Reports were not made publicly available because they contained private information (e.g. name of the pilots, etc.). In 2006, the IAC decided to make Final Reports publicly available and this is the case for almost 100% of the occurrences thereafter.

2.3.3 Potential reasons for the lack of responses from States/Administrations

2.3.3.1 WG-20 did not receive information from 24 States/Administrations. WG-20 drew up a number of hypotheses on the reasons why it did not receive responses from these States/Administrations regarding the release of Final Reports. The first hypothesis is that the States/Administrations did conduct an investigation but did not release or make publicly available any Final Reports. The second one is that it may be difficult for the States/Administrations to provide the reasons why the Final Reports were not made publicly available, possibly because no investigation was initiated. Based on the experience gathered from some of the AIAs, WG-20 expected more answers such as “high level decision to not make the Final Reports publicly available”. The States/Administrations might have preferred not providing such an answer.

3. **ACTION BY THE APAC-AIG:**

3.1 The APAC-AIG is to:

- a) urge APAC States/Administrations to respond to the survey on the reasons why Final Reports are not publicly available, if they have not yet done so;
- b) remind APAC States/Administrations of the obligation to institute an inquiry into the circumstances of accident under Article 26 of Chicago Convention; and
- c) remind APAC States/Administrations to make the Final Reports of their investigations publicly available in a timely manner for the dissemination of safety lessons learned.

APPENDIX A

SURVEY TO STATES/ADMINISTRATIONS

Regarding each accident (registration and date of accident) from the list in the appendix for which the Final Report is not publicly available, there are a few questions based on the different levels/steps of an Annex 13 accident investigation. The States/Administrations were requested to select the most appropriate answer:

Q1 For investigations that were not started, please indicate why:

- a) Annex 13 investigation was not applicable
- b) Not required by State legislation at that time (include filed difference to Annex 13 wherever possible)
- c) Other (free text)

Q2 For investigations that were started but not completed, please indicate why and the level of investigation:

- a) Level of investigation (e.g. initial notification, factual/preliminary report available, ongoing analysis, report writing, consultation, stopped...)
- b) Why investigation is not completed (e.g. insufficient resources, complexity of the investigation, ongoing ...)
- c) Other (free text)

Q3 If the investigation was completed but the Final Report has not been made publicly available, please indicate why:

- a) Not required by State legislation at that time
- b) High-level decision not to make it publicly available
- c) Other (free text)

Q4 For accidents in which Annex 13 was not applicable, please indicate why:

- a) Security related (e.g. hijack, suicide...)
- b) State aircraft (e.g. military, customs, police or fire fighting services...)
- c) Other (free text)

Additional question

Q5 Have you updated the information of your Accident Investigation Authority's Address on the ICAO website (<https://www.icao.int/safety/AIA/Pages/default.aspx>)? (Yes / No).

APPENDIX B

**DETAILED ANALYSIS OF THE ANSWERS TO THE SURVEY CONCERNING THE 1 157 ACCIDENTS
IN THE DATABASE**

For the 1 157 accidents in the database, which occurred between 1990 and 2016, the table below details the ratio of Final Reports made publicly available in terms of ICAO regions.

Region (ICAO Regional Office)	Number of fatal accidents in the region (1990- 2016)	Number of Final Reports found publicly available in the region	Ratio of Final Reports found publicly available in the region
Asia and Pacific (APAC)	199	113	57 %
Eastern and Southern Africa (ESAF)	82	13	16 %
Europe and North Atlantic (EUR/NAT)	247	153	62 %
Middle East (MID)	51	22	43 %
North America, Central America and Caribbean (NACC)	310	280	90 %
South America (SAM)	167	118	71 %
Western and Central Africa (WACAF)	101	25	25 %
Global	1 157	724	63 %

For the 1 157 accidents in the database, which occurred between 1990 and 2016, the table below details the ratio of Final Reports made publicly available in terms of number of fatalities.

Number of fatalities	Number of fatal accidents	Number of Final Reports found publicly available	Ratio of Final Reports found publicly available
More than 100 fatalities	78	62	79 %
Between 99 and 50 fatalities	64	49	77 %
Between 49 and 5 fatalities	481	261	54 %
Less than 5 fatalities	536	352	66 %
Global	1 157	724	63 %

APPENDIX C

**DETAILED ANALYSIS OF THE ANSWERS TO THE SURVEY CONCERNING THE ACCIDENTS
IN THE DATABASE FOR WHICH WG-20 RECEIVED RESPONSES FROM
STATES/ADMINISTRATIONS**

For the 1060 accidents in the database, which occurred between 1990 and 2016, for which WG-6 found Final Reports and WG-20 received a response, the table below details the ratio of Final Reports made publicly available in terms of ICAO region.

Region (ICAO Regional Office)	Number of accidents for which WG 6 and WG-20 received a response	Number of Annex 13 investigations conducted following accidents	Number of Final Reports found publicly available	Ratio of Final Reports found publicly available
Asia and Pacific (APAC)	188	181	113	62 %
Eastern and Southern Africa (ESAF)	31	30	13	43 %
Europe and North Atlantic (EUR/NAT)	243	218	153	70 %
Middle East (MID)	37	35	22	63 %
North America, Central America and Caribbean (NACC)	310	302	280	93 %
South America (SAM)	156	147	118	80 %
Western and Central Africa (WACAF)	95	93	25	27 %
Global	1060	1007	724	72 %

The result shows that APAC AIAs is lagging behind the worldwide average in terms of adherence to the Annex 13 Standard in making Final Reports publicly available.

For the 1060 accidents in the database, which occurred between 1990 and 2016, for which WG-6 and WG-20 received a response, the table below details the ratio of Final Reports made publicly available in terms of number of fatalities.

Number of fatalities	Number of accidents for which WG6 and WG-20 received a response	Number of Annex 13 investigations conducted following accidents	Number of Final Reports found publicly available	Ratio of Final reports found publicly available
More than 100 fatalities	73	73	33	45 %
Between 99 and 50 fatalities	61	60	41	68 %
Between 49 and 5 fatalities	428	405	327	80 %
Fewer than 5 fatalities	498	468	323	69 %
Global	1060	1007	724	72 %

For the 1060 accidents in the database, which occurred between 1990 and 2016, for which WG-6 and WG-20 received a response, the table below details the ratio of Final Reports made publicly available in terms of periods of time.

Period of time	Number of accidents for which WG-6 and WG-20 received a response	Number of Annex 13 investigations conducted following accidents	Number of Final Reports found publicly available	Ratio of Final Reports found publicly available
1 January 1990 to 1 July 1994	239	227	137	60 %
1 July 1994 to 1 July 2001	339	324	222	68 %
1 July 2001 to 1 July 2010	313	302	241	80 %
1 July 2010 to 31 December 2016	169	153	124	81 %
Global	1060	1007	724	72 %

For the 337 accidents in the database, the WG-20 received information for 309 accidents, which occurred between 2006 and 2016, the table below details the ratio of Final Reports made publicly available in the period 2006-2016.

Period of time	Number of fatal accidents	Number of accidents for which WG6 and WG-20 received a response	Number of Final Reports found publicly available	Ratio of Final Reports found publicly available
1 st January 2006 to 31 December 2016	337	309	231	69 %

APPENDIX D

RATIO OF FINAL REPORTS MADE PUBLICLY AVAILABLE BY STATES/ADMINISTRATIONS FOLLOWING FATAL ACCIDENTS INVOLVING CIVIL-OPERATED AEROPLANES WITH A MASS OVER 5,700 KG WHICH OCCURRED BETWEEN 2006 AND 2016 FOR APAC REGION

PQ 6.401: Has the State promulgated regulations requiring that all Final Reports from aircraft accidents and serious incidents investigations be completed and made publicly available? (ICAO reference Annex 13 Standard 5.4 & 6.5, Critical Element 2)

PQ 6.403: Has the State established and implemented guidelines regarding the development, content and format of the Final Report? (ICAO reference Annex 13 Recommended Practice 6.1, Critical Element 5)

The column “6.401 & 6.403 Satisfactory Sum” was developed by WG-20 to compare the results of the two PQ assessments with the actual release of Final Reports.

State	6:401 Satisfactory	6:403 Satisfactory	Satisfactory Summary	Number of fatal accidents in the State (2006-2016) for which an Annex 13 accident investigation was conducted	Number of Final Reports found publicly available by WG-6 or WG-20	Ratio of Final Reports found publicly available by WG-6 or WG-20 (%)
Afghanistan	No data	No data	No data	6	No answer	17 %
Australia	1	1	2	2	2	100 %
Bangladesh	0	1	1	1	1	100 %
Cambodia	0	0	0	1	1	100 %
China	1	1	2	7	5	71 %
Fiji	1	1	2	1	1	100 %
France	1	1	2	5	5	100 %
India	0	1	1	3	3	100 %
Indonesia	1	1	2	12	11	92 %
Japan	1	1	2	1	1	100 %
Korea (Democratic People's Republic)	1	1	2	1	1	100 %
Lao People's Democratic Republic	0	1	1	1	0	0 %
Malaysia	1	1	2	1	1	100 %
Mongolia	1	1	2	0		
Myanmar	1	1	2	1	1	100 %
Nepal	0	0	0	4	1	25 %
New Zealand	1	1	2	0		

Pakistan	1	1	2	7	5	83 %
Papua New Guinea	0	0	0	3	3	100 %
Philippines	1	1	2	2	1	50 %
Thailand	1	0	1	2	1	50 %
Vietnam	1	0	1	1	No answer	

APPENDIX E

REASONS WHY FINAL REPORTS ARE NOT MADE PUBLICLY AVAILABLE

The following table details the reasons why investigations were not started.

Investigation not started (Q1)	Number of answers
a) The State decided to not conduct an Annex 13 investigation since the occurrence was a State flight (e.g. military, customs, police or fire fighting services...) <i>Note: An accident investigation may have been started but during the investigation, it was finally decided not to conduct an Annex 13 investigation since the occurrence was related to a State flight. The other option was that States decided not to initiate an Annex 13 investigation for the same reasons.</i>	54
b) The State decided to not conduct an Annex 13 investigation since the occurrence was an intentional act (e.g. hijack, terrorism, suicide ...) <i>Note: An accident investigation may have been started but during the investigation, it was finally decided not to conduct an Annex 13 investigation since the occurrence was related to an intentional act. The other option was that States decided not to initiate an Annex 13 investigation for the same reasons.</i> <i>Note: Annex 13 investigation shall be initiated and conducted even in the case of an act of unlawful interference is involved.</i>	25
c) Not required by State legislation at that time	11
d) There was no AIA able to conduct an accident investigation at that time	14

The following table details the reasons why investigations were started but not completed.

Investigation started but not completed (Q2)	Number of answers
a) The process of the investigation is on-going and it is planned to make the Final Report publicly available	5
b) Investigation is on-going but is technically complex	4
c) Investigation is stopped and not completed due to the complexity of the investigation (e.g. lack of flight recorder data, etc.)	11
d) Insufficient resources to conduct the investigation	18

The following table details the reasons why investigations were completed but Final Reports were not made publicly available.

Investigation completed but Final Report not publicly available (Q3)	Number of answers
a) Not required by State legislation at that time	70
b) High-level decision not to make it publicly available	9

The following table details the reasons why no answer was provided.

No answer provided	Number of answers
a) State was not able to provide an answer despite research	73
b) No reasons at all provided by State	42

— END —