

**ICAO-ACI/LAC SEMINAR ON BIRD HAZARDS,
ENVIRONMENTAL PROTECTION AND LAND USE AT
AIRPORTS FOR THE NAM/CAR/SAM (AMERICAS) REGIONS**

**BIRD CONTROL AND REDUCTION COMMITTEES
IN THE SOUTH AMERICAN REGION**

By

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ABSTRACT

A rapid overview on the way that ICAO has been dealing with the bird strike issue is presented in this paper. It also shows that the notification/information of occurrences on bird strike incidents/accidents need to be improved by the States. The increase of bird strike occurrences reported by the USA is stressed while an opposite trend is shown for other countries in the period of 1983 to 1998. The social aspects on bird strikes are discussed in this paper as well as the ICAO recommendations for bird hazard reduction, with emphasis on the organization of national and regional committees, are also focused. Finally, it describes how the national committees were organized in Argentina, Brazil, Panama and Uruguay.

Key words: South American Region, Notification/Information, Economical/Social, ICAO Recommendations, National Committees.

INTRODUCTION

A great number of aircraft accidents/incidents involving bird strikes occurs every year all over the world. As a consequence, besides the losses of human lives, the society also loses a great amount of money. Part of this money could be used to improve the air transportation and the aviation safety or it could be applied into other human being activities as, for example, the reduction of hunger and poverty.

All the persons involved in the aircraft/airport activities might be aware of the importance of the prevention of bird strike hazard. This is the first step that should be taken, in order to start approaching the problem.

The International Civil Aviation Organization (ICAO) has been dealing with this issue since the 60's. Besides the technical publications, ICAO has provided opportunities for seminars and workshops on the subject.

One of these workshops was held in Santiago, Chile, from 29 March to 02 April 1993. One of the recommendations presented in the final report of this seminar was the creation of national committees by the states and the organization of a regional committee (Ref. 13).

Unfortunately, not much has been done since then, even though the former AGA regional officer of the South American Region had prepared a draft on how the organizational structure and the legal aspects of the regional committee would be.

This paper focuses on some aspects of bird strike hazard. One of them is the lack of notification/information of accidents/incidents by the States. Another aspect addressed by this paper is the social and economical losses that go beyond the material and human losses.

Another item discusses the ICAO recommendations on how to control and to reduce the bird strike hazards. Finally, is presented an overview on the committees already implemented by some States in the South American Region.

BACKGROUND

According to Rao & Pinos (18), bird strikes are reported since 1908. The authors also state that ICAO started collecting bird strike data since 1965 and in 1980 the Organization introduced the automated notification process IBIS (ICAO Bird Strike Information System).

Up to now, ICAO has gathered information on more than 78000 bird strikes from more than 190 States (countries) and has conducted several workshops on bird strikes. In addition, besides the Annex 14, ICAO has produced three manuals with recommendations that focus on the bird strike issue. These documents will be discussed later on.

Based on this information, it becomes clear that the main preoccupation of ICAO is to provide good statistical data on bird strikes around the world, technical information/recommended practices and training, as well.

Even though ICAO puts a tremendous effort in order to gather good information, there is still a long way to go through in this matter, as it is discussed as follows.

Lack of Notification/Information by the States

One of the main problems with the data collection on bird strikes is the lack of good reporting systems, as addressed by Alan *et al* (02). They affirm that although the ICAO IBIS handbook had 228 listed countries in 1996, only 38 reported bird strike data to ICAO in that year.

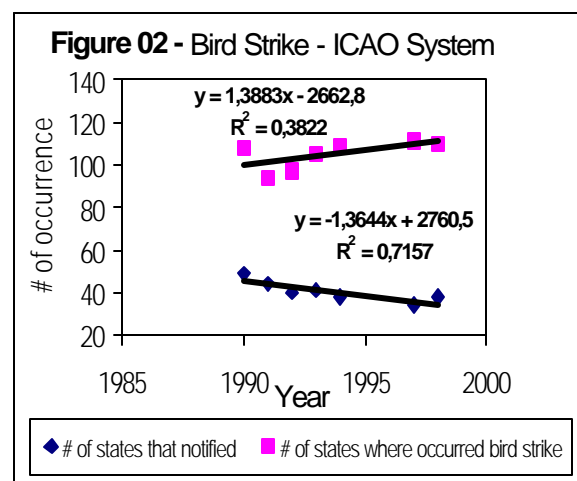
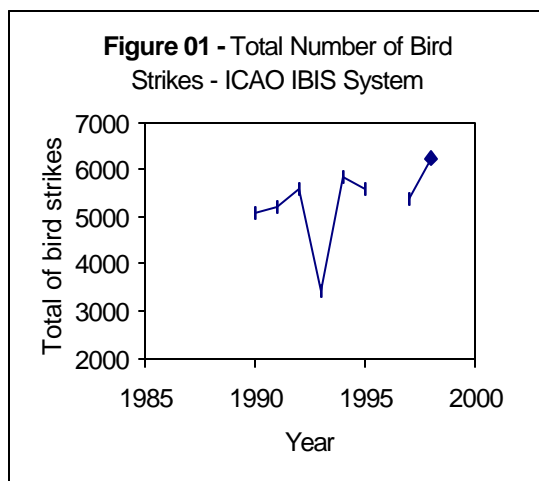
The same authors relate an estimation made by Cleary *et al* that only 20 % of the bird strikes occurring in the USA are reported to the Federal Aviation Administration. This information is also corroborated by Eschenfelder (06).

Statistical data obtained by the ICAO IBIS system (08,09,10,11) for the period of 1990 to 1998 is summarized in Table 01.

Table 01 – Statistical data – ICAO IBIS System (08,09,10,11)

Parameter (number)	Year								
	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total of bird strikes	5083	5204	5586	3427	5828	5605	?	5384	6239
States that reported	49	44	40	41	38	?	?	34	38
States of occurrence	108	94	97	105	109	?	?	111	110

These data are also presented in Figures 01 and 02, respectively for the total bird strikes and for the “states that reported” and “states of occurrence”.



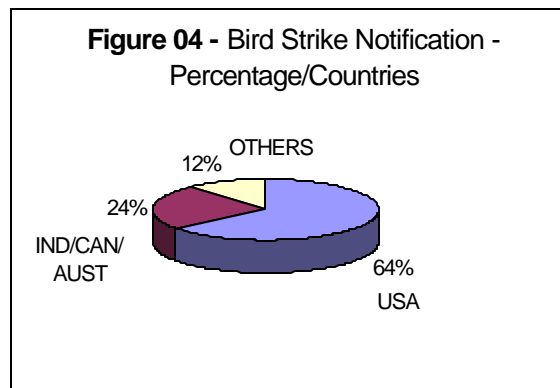
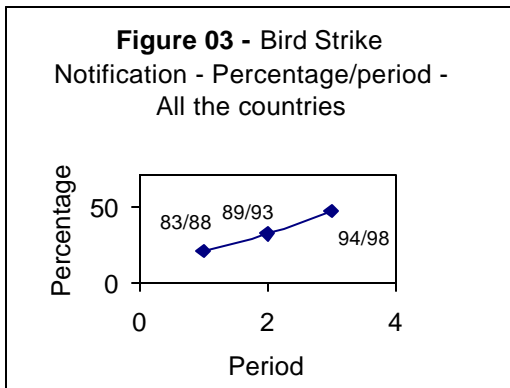
As one can see, there is a tendency of the increase of total bird strikes and “states of occurrence”, respectively in Figures 01 and 02. On the other hand, there is a tendency of decrease in the number of countries that report the bird strikes in Figure 02.

Allan *et al* (02) summarize the number of bird strikes per year presented by the 20 countries reporting the highest total number of these occurrences in the period of 1983/1998. These data only refer to the number of strikes with birds over 2 Kg. The sources of their data and the number of strikes reported are, respectively, ICAO: 1238, National Aviation Authorities: 603, Engine Manufacturers: 59, Airlines: 5 and Others: 8.

These data were reworked and broke down into 3 periods: 83/88, 89/93 and 94/98. The percentage of bird strikes for each period related to the total number of reports for the 20 countries is presented in Figure 03. In this figure, it is absolutely clear that the percentage (number) of reports increased from the first to the third period.

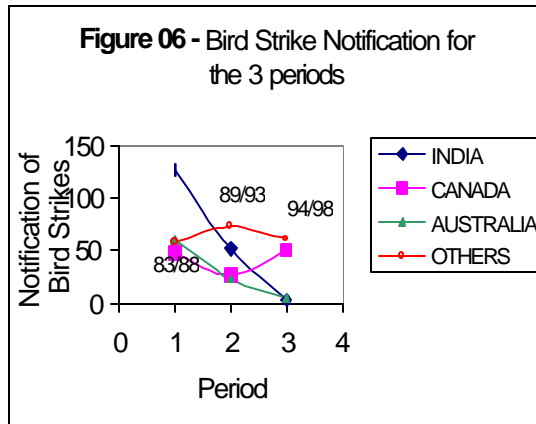
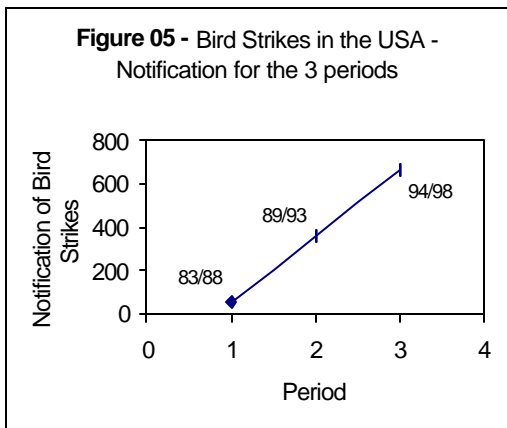
Another way to analyze these data is to also break them down into three groups of countries: group 1 - USA; group 2 – India/Canada/Australia; group 3 – Others. Figure 04

shows that 64 % of the reports came from the USA, 24 % from the group 2 (India, Canada and Australia) and only 12 % from the other 16 countries.



On the other hand, Figure 05 shows that the number of notifications made by the USA has increased tremendously from the first to the third period even though this country has seriously considered and efficiently worked with wildlife control at and near the airports.

Figure 06 evidences that the number of strikes of birds over 2 Kg has markedly decreased in India while it did not vary much in Canada, Australia and the sum of the other countries.



These findings definitely indicate that the notification/information on bird strikes needs to be improved.

According to ICAO (17), it is believed that the number of bird strikes is increasing and at least the following reasons are pointed out for that:

- ◆ The increase in the air traffic;
- ◆ The increase in the speed of the aircrafts;
- ◆ The introduction of quieter aircrafts;

- ◆ The fiscal constraints imposed on the airports;
- ◆ The lack of land use planning;
- ◆ Lack of co-ordination with municipal organizations where the airports are located;
- ◆ The low priority given to wildlife control by some airport authorities; and, etc.

Another reason for the increase of bird strikes could be the increase of bird population in some areas as it is pointed out by Alge (01). He reports that the number of resident geese (non-migrating) in North America has presented a tenfold increase from 1970 (~ 200,000 geese) to 1997 (~ 2,000,000 geese).

BEYOND THE MATERIAL AND HUMAN LOSSES

Curtis (05) calls the attention to the fact that bird strike is an economic and social subject that goes beyond aviation. In terms of the social side of the problem, he emphasizes that the following groups are affected by the bird (and wildlife) hazards: airlines, aircraft and engine manufacturers, airport operator, flight crews and national governments.

It is estimated that only in the USA the bird strikes cost US\$400 million a year in damage and loss time to aircraft (04). According to Rao & Pinos (18), estimation made by the Transport Canada indicates that the bird strikes cost for North American airlines could lie between US\$500 million and US\$1 billion per year.

Considering the direct and indirect costs (losses) for the social groups described by Curtis (05) as well as for the entire society and, expanding this thought for the entire world, one can easily arrive at losses as high as US\$ 2 billion per year. Let's assume, for a while, that this estimation is trustful.

There is a common meal in Peru called "menu" which is relatively balanced in terms of nutritional quality and the average price could be assumed as S/.4.00 (S/. = *nuevos soles*, the Peruvian currency), which is approximately equivalent to US\$1.15.

As indicated by Equations 01 and 02, the assumed losses/year for the entire world (US\$ 2 billion) could feed around 2.38 million people, twice a day, in Peru, which is roughly equivalent to 10 % of the country population.

Equation 01

$$\boxed{\text{US\$2,000,000,000.00} \div \text{US\$1.15} = \mathbf{1,739,130,435 \text{ meals}}}$$

Equation 02

$$\boxed{1,739,130,435 \div 365 \div 2 = \mathbf{2,382,370 \text{ persons}}}$$

There are several initiatives going on in the world in order to reduce these losses. Among them, ICAO has given a remarkable contribution to the subject since 1965 in terms of

gathering statistical data, providing training and technical publications with their recommendations as it is now discussed.

ICAO RECOMMENDATIONS

As it is very well known, the Annex 14 to the Convention on International Civil Aviation (Ref. 07) is the basic document recommended by ICAO for aerodromes. Item 9.5 of this document is related with the “Bird Hazard Reduction”. In addition, the Airport Services Manual, Part 3, “Bird Control and Reduction” (12) and “Manual on the ICAO Bird Strike Information System (IBIS)” (Ref. 15) specifically deal with the subject.

Complimentary information, mainly for construction of new airports, should be obtained in the documents Airport Planning Manual, Part 1, “Master Planning” (Ref. 16), and Part 2, “Land Use and Environmental Control” (Ref. 14).

Recommendations of the ICAO Doc 9137-AN/898, Part 3, “Bird Control and Reduction”

According to this document, a national committee is a focal point to deal with the aspects indicated in Figure 07.

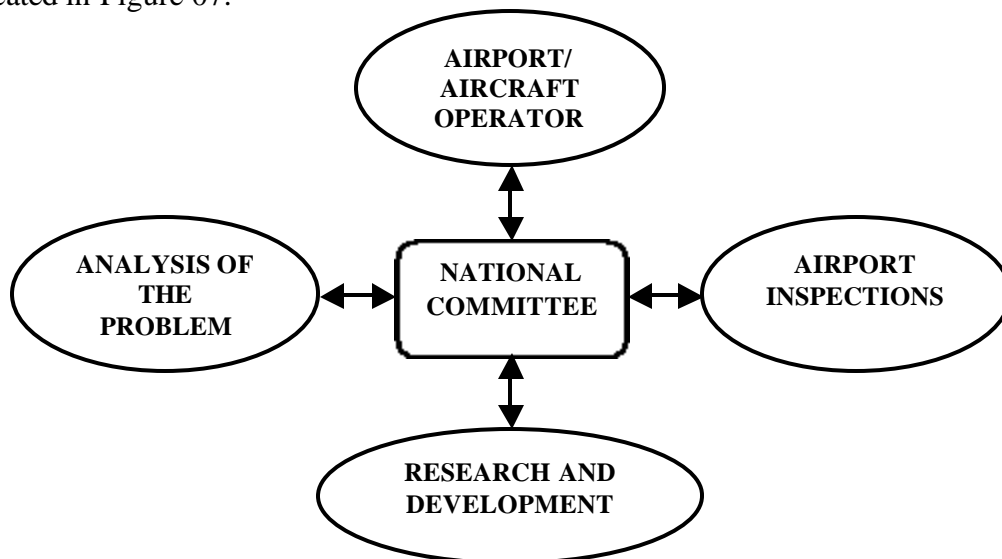


Figure 07 – National Committee as a Focal Point (Ref. 12)

National committee is an initiative that permits the collection of information and the participation of airports and aviation community in the bird control and reduction. Also, a national committee does not have much authority on the decision making process and it acts as an information source for the aviation community.

The general structure of a national committee suggested by ICAO is represented in Figure 08.

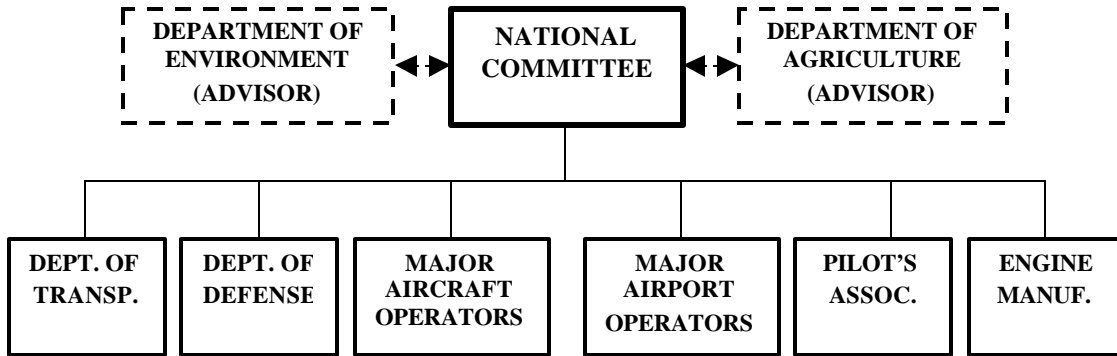


Figure 08 – Basic Structure of a National Committee (Ref. 12)

The most critical hazardous condition in each airport should be the main objective in the creation of a committee. Keeping this in mind, the main aspects presented in Figure 09 might be considered. In addition, it is extremely important to consider the fundamental ecological studies and research.

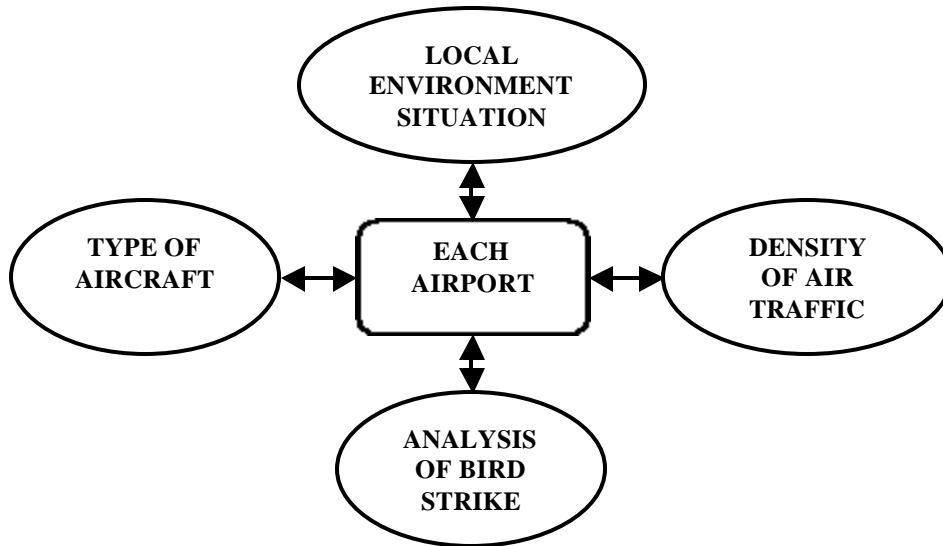


Figure 09 – Aspects to Be Considered in the Creation of a Committee (Ref. 12)

ICAO’s recommendations in terms of responsibilities of a control program, taking into consideration the different levels that the committee should work, are summarized in Figure 10.

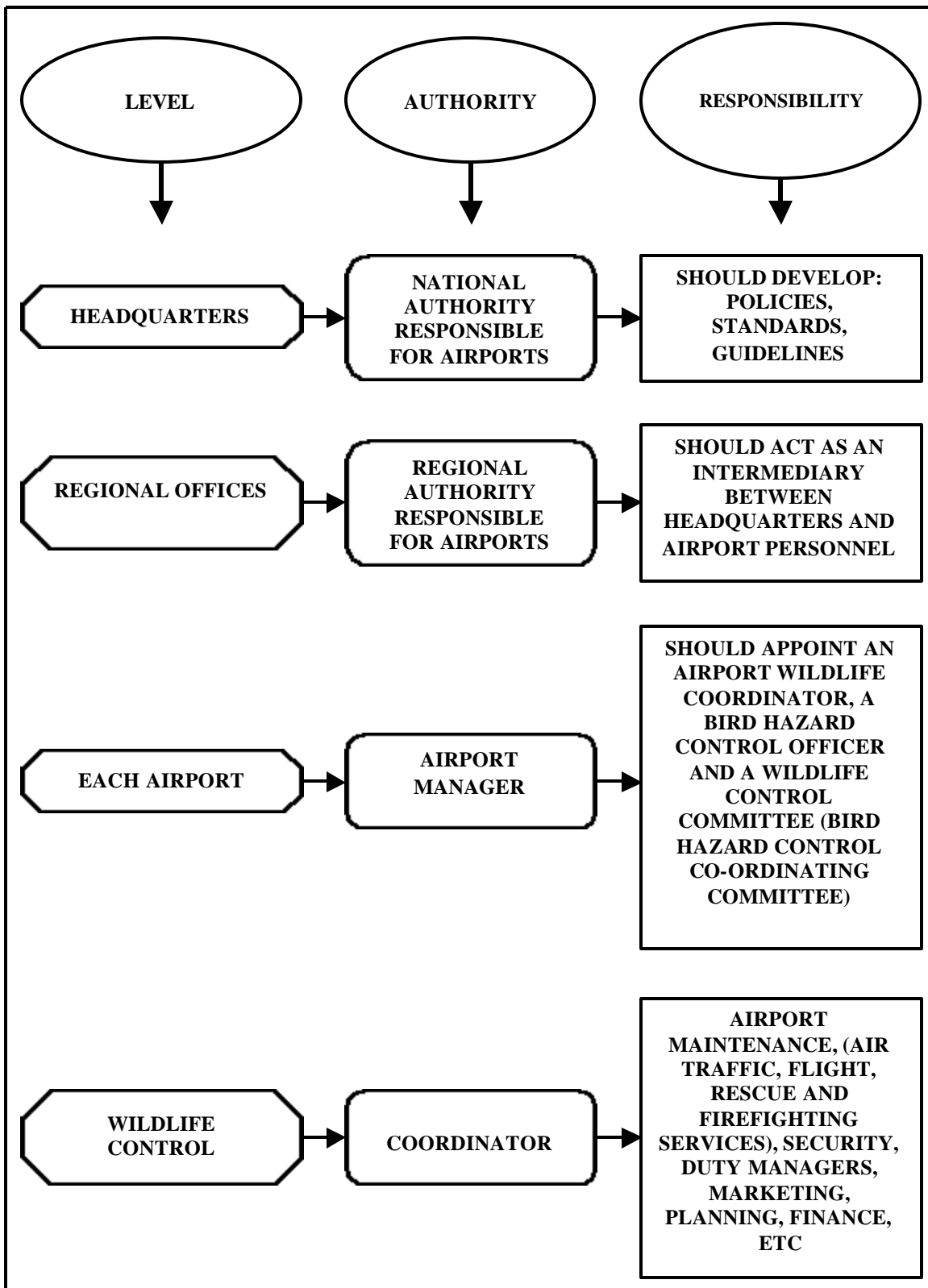


Figure 10 – Roles and Responsibilities of a Control Programme (Ref. 12)

COMMITTEES IN THE SOUTH AMERICAN REGION

The Regional Director of the South American Region has sent a letter to each one of the States in order to gather information regarding the status of the organization of “Bird Strike Committees” in the Region.

The information available indicates that there are committees organized in Argentina, Brazil, Panama and Uruguay. Some comments from each one of these committees are presented as follows.

Argentina

The “Bird Strike Hazardous Prevention Committee” of Argentina was created by the Argentinean Air Force, through the Resolution number 561, dated 04 August 1994. The basic organizational structure of this committee is presented in Figure 11.

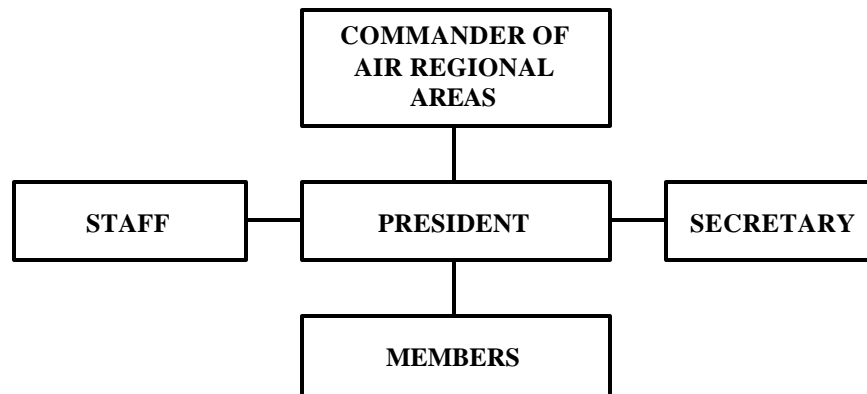


Figure 11 – Bird Strike Hazardous Prevention Committee of Argentina

The actual committee is formed by:

President: Brig. Horacio José VIOLA

Secretary: Vcom. Raúl Adolfo BARCALA

Members:

Vcom. Hugo Dante AMAYA: *Environmental Staff*

Mr. Luis SEVERINO (Aerolíneas Argentinas): *Prevention Staff*

Mr. Martin ECHEVERRY (Austral Líneas Aéreas): *Prevention Staff*

Mr. Esteban KERS (DINAR Líneas Aéreas): *Prevention Staff*

Mr. Raúl NOVO (LAPA Líneas Aéreas): *Prevention Staff*

Mr. Romeo FACIO (Empresa Aérea Southern Wind): *Prevention Staff*

Aer. Eng. Manuel MARTIN: *Empresa Aerolíneas Argentinas*

Mr. Fabián BUSTOS: *Representative of Aeropuerto Argentina 2000*

Mr. José Enrique CUADRADO: *Representative of ORSNA (Regulatory Agency of the National Airport System)*

Eng. Wenceslao G. VASINA: *Ornithological Expert (Natural Science Museum)*

Brazil

At the time that this paper was written there was no answer to the letter cited before. However, according to Bastos (03), the Brazilian Aeronautical Accident Prevention and Investigation System (SIPAER), created in 1971, has been gathering information on different aeronautical accidents/incidents.

The author says that the “Avian Hazard Control Program only in 1991 was developed (formerly Bird Strike Reduction Program), although bird strikes were already being registered in the SIPAER database.

Bastos (03) also presents statistical data, which shows that from September of 1980 to February of 2000 1858 bird strikes were reported in Brazil. His analysis also showed that over 82 % of the occurrences were located at or near the airport. This finding is close to the percentage (90%) presented by Rao & Pinos (18) after analyzing the ICAO IBIS data.

Panama

The “National Committee for Prevention of Bird Hazard” of Panama was created as a consequence of a combined effort between the Civil Aviation Authority of Panama (CAA) and the ICAO Technical Cooperation Mission. The committee was officially created through the Resolution No. 072-JD, dated 20 June 1996, published in the official newspaper of the Republic of Panama under the number 23,086, dated 24 July 1996, pp. 17-18.

A Permanent Commission (CAA employees) and a Consultant Commission (Public agencies and non-governmental organizations) form the committee.

The public agencies that participate in the committee are the CAA, Military Aviation, Health Department, National Institute for Natural Resources, Education Department and local authorities.

The non-governmental organizations that participate in the committee are ICAO, through the Technical Cooperation Mission, Audubon Society of Panama (SAP), National Society for the Nature Conservation (ANCON), Commercial Pilot Association and the Airline association of Panama (ALAP).

The committee has carried out over 40 meetings and it keeps a very well organized database. It must also to be pointed out that all the bird strikes occurred in Panama are notified to the ICAO South American Regional Office in Lima.

The representative of Panama in this Seminar will present a complete scenario of the committee activities.

Uruguay

Up to the moment that this paper was written, there was no answer to the letter sent by the ICAO Regional Director to the aeronautical authorities of Uruguay. However, in 11 November 1998, the president of the “National Committee on Prevention of Bird Hazard” of Uruguay notified the former AGA officer of the ICAO Regional Office, in Lima, about the creation of that Committee by the federal government of Uruguay.

CONCLUSIONS

The main conclusions of this paper are:

- ◆ The States have not given much attention to bird strike notification/information. In addition, the recommendations of the Seminar held in Santiago, Chile, in 1993, for the creation of national committees by the states and a regional committee were not totally accomplished.
- ◆ Some statistical data in this paper have shown an increase on bird strike incidents/accidents reported by the USA between 1983 and 1998 while an opposite trend has been observed for other countries.
- ◆ It has been shown, as an example, that the annual losses with bird strike incidents/accidents all over the world would be enough to feed 10 % of the Peruvian population.
- ◆ Emphasis was given on how ICAO has been dealing with bird strike control and reduction, mainly in terms of providing technical publication, statistical data through its IBIS system and training.
- ◆ Finally, the structures of the bird strike hazardous prevention committees of Argentina, Brazil, Panama and Uruguay were shown.

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