



A Study of the Institutional Changes in the Aviation Safety Management System

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ABSTRACT

The purpose of this study is to review the changes in the aviation safety management system, how that system has evolved and what forces caused these changes to take place. Also included is an examination of the development process of the aviation safety management system in view of the new institutionalism, identifying the patterns of change. Based on the results of this study, I propose policy methods to design a desirable civil aviation safety system with a view toward raising the safety standards in the Korean civil aviation community.

The major analysis variables are as follows: first, aviation accidents caused by external factors and international standards as independent variables; second, environmental changes and political processes affecting aviation safety management system as major mediating variables; and third, the aviation safety management legal system, the aviation safety management organizations and an expert participation system as dependent variables.

The institutional changes and continuance of the aviation safety management system show that when specific circumstances arise, the continuance lasts depending on the path dependency, and in a certain circumstance, when immanent changing factors reach a critical point, the system suddenly changes by a punctuated equilibrium, which are all included in this study.

Key words Institutionalism, Path Dependence, Punctuated Equilibrium, Aviation Safety Management, Civil Aviation Safety

Introduction



1. Background and purpose of the Study

Korea's Economic Development Plan, launched in the late 1960s was only aimed at the development of industry and export of goods, causing people to become desensitized to safety issues. Similarly in the transportation field, safety and the potential hazards of transportation modes were not managed in a systemic manner which lead to a series of accidents, which brought about a huge loss of human life and damage to property.

Because just one single accident in air transportation can be disastrous, air transportation safety management is very important. It is impossible to convert the losses caused by aircraft accidents into economic value because aircraft accidents bring about social and economic losses of both tangible and intangible forms, including: the lowering of the public's morale, loss of trust in the government, damage to the international status of the country, as well as loss of human life and property damage¹⁾. Nevertheless, aircraft accidents, both major and minor, have continued to occur since the civil air transportation service was launched in 1969.

The purpose of this study is to review and analyze why the safety management system was unable to respond appropriately to national civil aircraft accidents. Using a critical approach, this study analyzes and identifies characteristics and patterns in the changes in aviation safety management system from the perspective of low responsiveness and inability to adapt to the changes in the environment and finally present some suggestions for aviation policies leading towards the development of a desirable civil aviation safety management system.

2. Methodology of the Study

In regard to the changes in the aviation safety management system this study focuses on aviation safety legislation, civil aviation organization, and participation of aviation safety experts, which are the basic pillars of the aviation management system.

Aviation safety legislation is basically the Aviation Act and its subsidiary regulations; Implementation Regulation (Presidential Decree) and Implementation Regulation (Ministerial Regulation). The changes to the legislation will be reviewed

1) Kim, Yeonmyueng (2000) "Estimating the Cost of Aircraft Accidents and its international comparisons" 『The Korea Transport Institute』

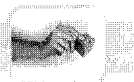
especially with reference to the Convention on International Civil Aviation and its Annexes.

In regard to civil aviation organization, this study centers on the Civil Aviation Safety Authority of the Ministry of Land, Transport and Maritime Affairs, its subsidiary agencies (Regional Aviation Administrations), government-funded organizations such as airport corporations and airlines that have a direct or indirect involvement in aviation safety. Regarding the participation of aviation experts, this study focuses on the activities of government officers and other experts working in different areas and organizations.

Secondly, sources for this study are: document reviews, interviews with the officers or personnel who were in charge, and my own personal experience. Research materials include: policy documents from the aviation safety authority, study reports and policy proposals by transportation safety related research institutions, government publications regarding aviation safety, publications of the International Civil Aviation Organization and concerned research papers. In addition, information obtained through interviews with aviation safety related government officers and other experts as well as my personal experience gained through direct and indirect observation are also used.

Thirdly, the methodology of this study is to analyze the factors that have affected changes in the safety management system with new institutional approaches. Therefore the process of the changes in the safety management system are comparatively analyzed by case and by period through path dependence and punctuated equilibrium, which is used as a main variable in new institutionalism.

II Theoretical Background and Analysis Model



1. Characteristics of Aviation Safety Management System

Aviation Safety means being free from accidents, so it is prevention of accidents in a narrow sense and freedom from all accidents in a broader sense. Therefore, the aviation safety system is a management system in which aircraft operations can be managed in good order within aircraft operations legislation, organization and personnel. The aircraft safety management system has the following unique characteristics that distinguish it from those of other transportation modes.

1) Aircraft safety management is a comprehensive and interdependent administration system

Development of aircraft contributed to having an internationalized regulatory system to ensure aircraft safety and all aviation safety regulatory systems are established based upon the international aviation act. Because of the nature of aircraft operations, various administrative organizations dealing with immigration, customs and quarantine and other administrative services for the security and convenience of users - communications, currency exchange and military affairs are interdependently performing duties that support and regulate international aircraft operations.

2) Regulatory control provides support to airlines in aircraft safety management

Air transportation service provides a great deal of convenience to the public. Towards this, nations impose necessary governmental controls over air transportation service to secure public safety and the orderly development of the air transportation business.

3) Regulatory control over aircraft has characteristics of international law

Air transportation is international since national aircraft fly to and from other Nation-States or the territories of other Nation-States. Complex issues of international law are raised with respect to air navigation or air transportation. Therefore, various kinds of aviation safety regulatory systems are operated, not just within a national legal framework, but under internationally uniform legal instruments.

4) Regulatory standards for aircraft require great expertise and have continuously evolved

It is inevitable that the Aviation Act becomes professional and technical since aircraft are a very technology-intensive product that have spawned from the development of high technology and science. Rapid development in civil aviation brought about changes in the expertise and standards of the regulatory system. Due to the development of ground aid to support aircraft operations, new regulatory control was required and to do this it was also natural that the Aviation Act evolve to become both more professional and more technical to reflect this.

2. Research approaches: new institutionalism analysis

Study of the institutional changes in civil aviation safety is centered on the changes to aviation safety related legislation and organizations. Aviation legislation and organization, as a critical factor in the shaping of the aviation safety management system, has become the foundation for the establishment of civil aviation.

From the perspective of safety management, it is of note that aviation legislation and organization have not been very responsive to external changes. Rather they tended to favor the development of air transportation. Therefore it needs to be systemically analyzed how the aviation safety system in the past worked in identifying the factors that lead to the failure of ensuring aviation safety.

In this study the new institutionalism approach was chosen to explain the foregoing matters. The reason for using new institutionalism is that civil aviation organization is well represented by the state of path dependence and punctuated equilibrium, which are used as the main variables in new institutionalism. Since the changes in aviation safety organizations have been caused by reformations of government organizations, and internationally affected by external changes in the environment, such as aircraft accidents, new institutionalism best represents the changes that tend to take place in the civil aviation management system.

In taking environmental change and the process of politics as main parameters, analysis of the changes in the aviation safety management system considers the case where the changes are made by punctuated equilibrium brought about by external changes and other cases that are not changed due to path dependence but are still affected by external impact.

3. Analysis variables and models

1) Setting analysis variables

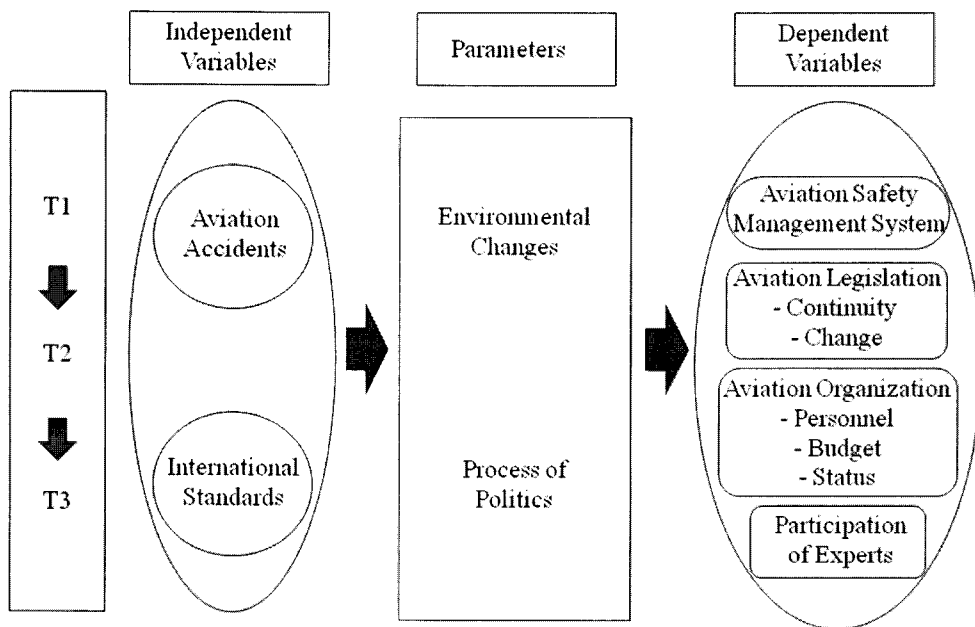
First, aircraft accidents and international laws are taken as independent variables. The aircraft accident is unpredictable and has significant impact on aviation safety management systems. Because most institutional changes have been made from the results of an aircraft accident investigation or as a result of international law, such as a multilaterally or bilaterally agreed upon legal instrument, they have made direct impacts on aviation safety management.

Secondly, environmental changes and political processes are taken as parameters. Environmental changes represent the relationship between the government and private

companies, competition among airlines, growth in the volume of air transportation and passenger demand that has an effect on the aviation safety management system. The political process consists of responses of the government, media, politics and industry.

Thirdly, legislation, organization and expertise are taken as dependant variables. The factors produced by aircraft accidents and international law, through the parameters of environmental changes and the political process, can have direct or indirect effects and bring about institutional changes in the aviation management system; legislation, organization and experts' participation channels.

2) Analysis Model



Note) T1: 1988~1997, T2: 1998~2001, T3: 2002~2005

III Analysis of the changes in the Safety Management System

1. Competitive Stage of Civil Aviation (Initial Stage : 1988~1997)

1) Process of civil aviation development

① Environmental changes

Competition in civil aviation started with the launch of the second civil airline in 1988 and brought the public better service as a result of competition between airlines. However, travel liberalization emerging in 1989 lead to an

increase in the number of flights and airlines provided additional flight services to please and meet the needs of their customers. This reckless provision of flight services increased hazardous factors to aircraft safety. Major and minor aircraft accidents gradually raised the awareness of and interest in safety and safety grew as a public concern.

② Aviation accidents and international law

There were 7 accidents involving commercial aircraft in the decade from 1988 to 1997. The main causes in all of the accidents were pilot error, five of which were made by Korean pilots. Two accidents in Jeju resulted from pilot error. Failure in the coordination between cockpit crew members involved the use of foreign pilots.

In accordance with the Convention on International Civil Aviation, its Annexes and the resolution of the International Civil Aviation Organization Assembly, the Republic of Korea has been audited by the ICAO under the Universal Aviation Safety Audit Program which is designed to evaluate compliance of countries with international standards and within its oversight capabilities. Moreover, based on the Air Service Agreement concluded with the United States, the Republic of Korea is subject to the International Aviation Safety Assessment of the United States.

2) Changes in the safety management system

The continued exposure of the public to media broadcasting concerns over public safety had an effect on the safety management system and resulted in institutional changes. However, no changes or progress was made at that time towards the improvement of legislation or safety oversight organization, which could actually affect the safety management system. Rather, small changes were made just to enhance operational safety of airlines.

Requirements dictating a crew's maximum time on board aircraft and pilot qualifications were strengthened. Security screening on passengers was also strengthened. Civil air traffic controllers were dispatched to airports where civil aircraft operated and restrictions on the use of electronic devices were introduced to prevent explosions in the aircraft in flight. Further details of some of the small changes are as follows:

First, with regard to Aviation Legislation

On the 14th of December 1991, the introduction of a provision dictating the maximum time on board an aircraft for a crew was enacted so that the maximum time on the aircraft could be allocated daily, monthly and yearly.

On 26 July 1993, in instances such as the case of Mokpo Airport, in which military airfields were also used for civilian aircraft, civil air traffic controllers from the Ministry of Construction and Transportation were dispatched to provide air traffic services to the civil aircraft.

On 27 December 1993, it was promulgated that aircraft shall be equipped with ELT to assist in identifying the location of aircraft in the event of an accident.

Second, with regard to aviation safety management organization:

On 21 June 1990, the Air Traffic Control and Communication Division of the Ministry of Transport, which was previously the flight operations division and the communications division, was expanded once again to three divisions: the aircraft operations division, the airworthiness division; and The communication and tele-electronic division. The Aviation Policy Division was restructured as well.

On 11 January 1990, two regional administrations were established in Pusan and Seoul. And on 23 December 1994 under the government policy of small government, the Ministry of Transport and the Ministry of Construction were consolidated into the Ministry of Construction and Transportation. The Air Traffic Control Center was established on 1st March 1995 to take over the role of airspace management in the Republic of Korea from the Korean Air Force, and so finally the airspace management, previously separated by civil and military authorities, became unified.

Third, with regard to the participation of aviation safety experts:

There is not much progress in the participation of aviation experts in aviation safety management organization. On the first of August 1983, Procedures for Accident Investigation and Management (MOT Order 753) were developed and a post responsible for accident investigation was established within the airworthiness division of the Civil Aviation Bureau and the officer concerned conducted investigation of aircraft accidents.

Also, Institutional changes following the aircraft accident in Guam in the U.S. involved the implementation of a comprehensive operational control system using high-tech equipment in airliners.

Table 1 Institutional Changes in the Civil Aviation Safety Management system in the age of competition (1988-1997)

Independent variable	parameter	Institutional Change	Dependent Variable
Aircraft Accident	Environmental Change	(1) Flight time limitation (1989,7,27 and 1991,12,14) (2) Enhancement of standards for the recruitment of foreign pilots (1992,1,16) (3) Strengthening requirements for crew qualification of (1997,8,6)	Aviation Safety management legislation
International Law	Process of politics	(1) Dispatch of civil air traffic controller to the military control tower of the Mokpo airport following the accident in The airport on 26 th of July 1993 (2) Invitation of foreign experts for safety management following the accident in Guam on 6 th August in 1997 (3) Requirement for the installation of GPWS to prevent aircraft in flight from colliding with terrain and to study preventive measures for proximity flight(1997,8,6)	Aviation Safety management organization

2, Takeoff Stage of Civil Aviation (Second Stage: 1998~2001)

1) The Process of Civil Aviation Development

① Environmental change

Influenced by the aircraft accident in 1997 in Guam, the aviation safety division, which had been habitually neglected in aviation safety management organizations, was newly established on 28 February 1998. Also the ICAO Universal Safety Oversight Audit in June 2000 and FAA International Aviation Safety Assessment in May 2001 greatly motivated changes in aviation safety legislation and organization.

In particular, as an institutional improvement to enhance safety oversight functions of the government, the aviation safety division was established and made fully responsible for aviation safety management. It also brought forth amendments and refinements to aviation safety legislation, which used to be less than comprehensive, to better ensure aviation safety.

New divisions were established concerned with carrying out aviation safety oversight functions. This was at the very same time that great milestones were made in the development of aviation, thus classified as the takeoff stage of civil aviation.

② Aviation accidents and international law

There were 4 accidents involving commercial aircraft in the 4 years from 1998 to 2001. Three accidents were caused by pilot control error, which means that accidents resulting from human error still continued. The other accident was due to equipment trouble caused by careless maintenance and poor measures taken by the pilot; that is, the accident was brought by habitual noncompliance with regulations and procedures.

The International Civil Aviation Organization began to audit contracting countries under the Universal Aviation Safety Oversight Audit Program starting in January 1999. The Universal Aviation Safety Oversight Audit Program was promulgated at the 32nd ICAO Assembly.

The Republic of Korea, as a contracting country, was also audited during the period of 6 ~14 June 2000 on three areas: personnel licensing, aircraft operations, and airworthiness. A number of findings and recommendations were made.

Having an air service agreement newly signed on 18 June 1998, the U.S. Federal Aviation Administration required the Korean government to conduct regular inspections on their aviation safety management functions and requested corrective actions in accordance with Article 6 of the agreement between the U.S and the Republic of Korea.

The first inspection was made during the period of 22 ~25 May, which was followed by the follow-up inspection in 16~28 July 2001. The inspection covered the same three areas as the ICAO did and eight areas of regulations, procedures and qualified personnel, etc. were all found not satisfactory. The safety level of the Republic of Korea was downgraded to Category II as of 17 August 2001.

2) Changes in the safety management system

Improvements made after aircraft accidents:

First, Changes brought about through changes in aviation legislation -

Flight time of cabin crew must be approved by the Government.

Aerodrome certification was introduced to manage airport operation in compliance with international standards.

Pilot's route qualification was changed to airport qualification.

The aviation safety inspection program was introduced to carry out surveillance

Table-2 Institutional changes during the take off stage of Civil Aviation(1998-2001)

Independent variable	Parameter	Institutional Change	Dependent Variable
Aircraft Accident	Environmental Change	(1) Requirement for the installation of ACAS (1998,9,18) (2) Establishment of Aviation Accident Investigation Board (1999,3,15) (3) Reduction in the Crew's maximum time on board aircraft (1999,3,15, 4,15) (4) Recognition of Pilot Association (1999,4,15) (5) Introduction of the requirement for the installation of Flight Safety Alerting Systems (1999,12,23) (6) Improvement of the requirement for Maintenance Systems (1999,12,23) (7) Pilot qualification system (2001,9,12)	Aviation Safety management legislation
International Law	Process of Politics	(1) Dispatch of civil air traffic controllers to military control towers ('98,8,5,' 99,3,15) (2) Establishment of Aviation Safety Division (1998,2,28) (3) Introduction of the Aircraft incident reporting system (2000,1,10) (4) Establishment of the Korean Airspace Committee (2000,1,26) (5) Introduction of Aerodrome Certification System (2001,9,12) (6) Limitations on the cabin crew's maximum time on board aircraft (2001,9,12)	Aviation Safety management organization
		(1) Introduction of the Aviation Safety Inspection Program (1999,10,1)	Expertise

and inspection of airlines.

The International Pilot Association was recognized and Korean pilots were allowed to join.

Use of flight simulators in pilot training was allowed

Second, changes in aviation safety management organizations;

The organizational change made at this stage was the establishment of the Aviation Safety division on 28 February 1998. Followed by the ICAO USOAP in 2000, the Civil Aviation Bureau, which had been consolidated on 24 May 1999, was reorganized and expanded from 6 divisions to 8 divisions with a reinforcement of aviation safety oversight functions on 16 July 2001.

Table-3 Organizational changes during the take off stage of Civil Aviation (1998-2001)

Date		Name of organization	
1st Stage 1988~1997	1990.6.21	CAB of MOT	Aviation Policy Div. International Air Transport Div. Airport Development Div, ATC and Communication Div., Aircraft Operations Div., Airworthiness Div, Communication and Electric Div
2nd Stage 1998~2001	1998.2.28	CAB of MOT	Aviation Policy Div. Aviation Policy Div. Airworthiness Div, Communication and Electric Div, Aviation Facility Div, International Aviation Div., Aviation Safety and Operations& ATC Div
	2001.7.16	CAB of MOT	Aviation Policy Div., Aircraft Operations Div., Airworthiness Div, Personnel Licensing Div. Accident Investigation Div, ATC and Communication Div. Airport Facilities Div, International Aviation Div.

Third, changes to expert participation in aviation safety:

On 5 February 1999, designation or commission of experts was introduced in order to have aviation experts in the industry provide consultation regarding aviation safety and on the 1st of October 1999, a total of 5 aviation safety inspectors, three in Operations and two in Maintenance, were recruited. In August 2001 two inspectors were recruited respectively for each regional administration that was relatively lacking in safety oversight activities. This created a total of eleven Inspectors to carry out aviation safety oversight as shown table 4.

3. Stable Stage of Civil Aviation (The Third Stage: 2002~2005)

1) The Process of Civil Aviation Development

① Environmental changes

At this stage, Korean civil aviation was highly affected by the results of ICAO USOAP in 2000 and FAA IASA. On 12 August 2002, the Civil Aviation Bureau was expanded to become the Civil Aviation Safety Authority, which was the exclusive authority with power with respect to aviation safety and

Table-4 Participation of Aviation Experts during the take off stage of Civil Aviation (1998-2001)

Time	Type	Number of Personnel	Duties	Remarks
Oct, 1999	Aviation Safety Inspector	5 (Operations3, Airworthiness 2)	Inspection	Airlines
Aug, 2001	Aviation Safety Inspector	6(Opeations1, CabinSafety1, Gimpo 2, Gimhae 2)	Inspection	Airport

technology. The Aircraft Accident Investigation Board was also established to ensure that safety investigation was conducted independently from the Civil Aviation Safety Authority. Such an expansion of the safety management organization resulted in strengthening safety oversight activities over the airlines. Safety oversight activities by inspectors have been considered an effective means of civil aviation safety management.

There have been no fatal aircraft accidents since the establishment of the civil aviation safety authority. At this stage improvements were made to aviation safety legislation as well as increases in the necessary personnel, contributing to the safe operation of civil aviation.

Therefore, the establishment of a civil aviation Safety Authority and Aircraft Accident Investigation Board in accordance with international aviation standards contributed to strengthening the functions of the necessary safety oversight activities over airlines and has been considered as an efficient safety oversight tool. In particular, after enhancing the safety oversight functions of the Civil Aviation Safety Authority, an accident-free environment has continued, so that this could be regarded as a mature stage of civil aviation.

② Aviation accident and international law standards

There were no fatal accidents involving aircraft used for commercial air transport from 2002 to 2005. During this period, aviation safety regulations were improved and functions of safety management were also reinforced with the establishment of the Civil Aviation Safety Authority on 12 August 2002.

This is the stage that various safety management and oversight functions became systemized and no accidents occurred. This is undoubtedly due to the effective inspections conducted by professional inspectors and the tireless efforts of all the aviation personnel to prevent aircraft accidents.

Also at the 35th ICAO Assembly, consistent with international standards, it was resolved that flight data recorders be installed on small aircraft. The International Pilot Association required that units at cruising level be unified as prescribed in the ICAO Annex 2, Appendix 3.

It was also resolved in accordance with Item 16.3 that the methodology for the ICAO USOAP be changed to the Comprehensive Systems Approach to be launched on 1st January 2005 so that the audit could cover State's compliance with all the safety related annexes.

2) Changes in the safety management system

Institutional changes made to the aviation safety management system are as shown in Table 5. First, changes in aviation safety legislation are as follows;

To enhance safety of aircraft operation, the Aircraft Operations Safety Act was amended as the Aviation Safety and Security Act.

The change made in accordance with international standards is to introduce aerodrome certification on 25 July 2003, which provides operational standards for the installation of aerodrome facilities and management of airport operations and to issue certificates to eight airports including Jeju, Yangyang, Gimhae, Chungju, Gwangju, Daegu, Gimpo and Incheon Airports.

Second, the change made in safety management organization was as follows.

At this stage, there was an innovative breakthrough in aviation safety management organization. On 12th August 2002 the Civil Aviation Bureau was expanded and restructured to become an independent safety management organization called the Civil Aviation Safety Authority. Staffed with 129 government officers including executive managers, the Civil Aviation Safety Authority is exclusively responsible for aviation safety related tasks and has Regional Administration and Air Traffic Control under its supervision. Also, an aircraft accident investigation board as a subsidiary

Table-5 Institutional Changes during the Stable Stage of Civil Aviation (The 3rd Stage: 2002~2005)

Time	Changes	Details
2002. 8.12	Amendment to the Aircraft Operations Act	Rename the Act as the Aviation Safety and Security Act
2002. 8.12	Accident Investigation Board	Legal reference was provided in the Aviation Act for the establishment of the Board
"	Civil Aviation Safety Authority	Legal reference was made for the establishment of a civil aviation organization fully responsible for aviation safety
2003. 7.25	Aircraft Security	Requirements for Aviation Security Personnel to be on board aircraft for transport of passengers and enhancement of safety through cockpit locks
"	Right of taking immediate measures for just cause	Right to have operations suspended when finding matters which might cause significant hazards to the safe operation of aircraft
"	Aerodrome Certification	The Aerodrome Certification System was introduced and implemented in international airports(Jeju, Yangyang, Gimhae, Chungju, Gwangju, Daegu, Gimpo and Incheon Airports.)
2005. 11.8	Aviation English Language Proficiency Requirement	Introduction of the requirement for aviation language proficiency for aviation personnel engaged in international aviation operation(pilots, air traffic controllers, etc)

Table-6 Participation of Aviation Experts during the stable stage of Civil Aviation (2002-2005)

Time	Type	Number of Personnel	Duties	Remarks
Aug, 2004	Regional Aviation administration offices	Seoul:20 (Operations 8,Airworthiness 12) Busan:13(Operations 8,Airworthiness 5)	Inspection	Office status

agency of the Ministry and an Aviation Policy Office under the supervision of the Director General of Transportation Policy in the Ministry was established.

Third, as for the experts' participation system, as shown in table 6, 5 aviation safety inspectors were recruited for the first time among aviation experts in October 1999, and 6 more safety inspectors joined them in August 2001 in order to carry out the inspections by fields.

Nevertheless, for the sake of reinforcing the aviation safety and maintaining no fatal accident record in the circumstance of low cost air carriers' emergence, etc., safety inspections were required not only on scheduled air carriers but also on unscheduled air carriers, aircraft business entities and aerodromes. This necessity triggered to change and supplement the safety management system that in August 2004, the Civil Aviation Safety Authority was tasked with the safety oversight responsibilities on scheduled air carriers, and the regional aviation administration offices on unscheduled air carriers, aircraft business entities and aerodromes. Further, 33 government officials affiliated with regional aviation administration offices(20 officials from Seoul regional aviation administration, 13 from Busan regional aviation administration) were appointed as safety inspectors to be charged with the inspection responsibilities.

IV Conclusions

This study is about the changes in the aviation safety management system and shows how and why the system has been changed. The purpose of this study, through analysis of the process of these changes, was to identify institutional consistency and factors that triggered institutional changes.

Aircraft accidents, great and small, have continued to occur since the civil air transportation service was launched in 1969. Because even one accident in air transportation can be tragic, air transportation safety management is very important. It is impossible to convert the losses caused by aircraft accidents into economic value

because the aircraft accidents bring about not only the loss of thousands of lives and immense property damage, but also social and economic losses in intangible forms, including the lowering of public morale, distrust in the government and damage to the international status of the country.

Korea, however, could not respond sufficiently to the way changes affecting aircraft operations. Safety regulations had loosened compared to the environmental changes. Every time new administrations came in, the government tried to shrink the aviation safety management and oversight organization. Constant consolidation or abolition of such organizations caused safety management organizations to function poorly.

Airlines, along with the trend towards liberalization, made rapid expansions to their organizations and functions. Government safety oversight functions that should keep up with the pace of change at the airlines, were not sufficient to prevent aircraft accidents.

As a result, changes to the safety management system were due to aircraft accidents, international standards (independent variables), or political influence and public opinion. All these factors brought about improvements and changes in the aviation safety management system. That is to say, consistent changes in the aviation safety management system could not be affected by legislation and organization regarding safety management without international standards or the effects brought on by the media, politics and public opinion.

Taking a look at the changes made in the safety management system, which is analyzed over time, there were not many changes due to the government policy of consolidating and abolishing aviation safety management organization, although there were many accidents caused by excessive competition during the competitive stage of civil aviation from 1988 to 1997.

At the stage of the civil aviation takeoff from 1997 to 2001, followed by findings in the aviation safety management capabilities and recommendations for improvement made by the international audits conducted under international standards, some aviation safety oversight functions were ensured and the accident investigation functions were strengthened.

During the stage of settlement, from 2002 to 2005, strengthening of the aviation safety management system continued and specialized agencies were established: The Civil Aviation Safety Authority and the Aircraft Accident Investigation Board, ensured that aircraft were safe.

It is believed, therefore, that the path dependence and the determining factors in

the changes in safety management policy and the institution of civil aviation in the Republic of Korea will present implications for aviation policies for the development of a civil aviation safety management system.

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