



International Civil Aviation Organization

C-WP/Model Session  
02/11/14

**WORKING PAPER**

**COUNCIL - SPECIAL MODEL SESSION**

**Subject : Argumentation over the forecasted shortage of skilled aviation professionals**

(Presented by France)

**EXECUTIVE SUMMARY**

In order to counter the imminent shortage of trained ATC and ATM professionals, the NGAP initiative has been mandated to identify and examine the reasons that led to this global issue. In this perspective, young air professionals from various countries have been asked to present their observations on this issue, and suggest actions to the Council. The present document has been submitted by the French delegation to be discussed during the next NGAP symposium, which will take place in Montreal in December 2014.

**ACTIONS**

The Council is invited to:

- a) Promote the lesser known professions in the aeronautical sector to the younger students.
- b) Encourage long training courses for ATSEP and ATCO professionals.
- c) Support career mobility inside ANSPs.

<i>Financial implications:</i>	Negligible to low. Possible expenses may be shared among universities, states and ANSP/air professional companies.
<i>References:</i>	NGAP official website, Eurocontrol website, ICAO doc 9956

## 1. INTRODUCTION

In order to counter the imminent shortage of trained ATC and ATM professionals, the NGAP initiative has been mandated to identify and examine the reasons that led to this global issue : massive retirements<sup>1</sup>, the difficulty to attract students and retain them, and to offer qualified and harmonized trainings. This working paper aims to :

- i. present the French context and assess the magnitude of the issue in France
- ii. discern the major components of the issue;
- iii. propose relevant actions which can be applied to a large number of member states.

## 2. BACKGROUND

France's context deserves studying since it appears to be immune to the issue in question. Despite the European willingness to open to competition in the ATC and ATM sectors, these services are still exclusively provided by a public owned corporation known as the DSNA<sup>2</sup>. As part of the Ministry of Transport, ATC/ATM benefits from a positive image in the public service : secure jobs, career opportunities and high wages attract hundreds of students who try every year to pass the public exams that lead to these positions.

Each of the DSNA's ATC/ATM professionals conducts their training at the French Civil Aviation University<sup>3</sup> where they meet other students from varied aeronautical sectors and countries, providing them with a beneficial and immersive work atmosphere, as well as thorough understanding of the dependency between with the civil aviation actors.

After a remunerated 3-year course spent between the ENAC and their future assigned work service, French ATCOs and ATSEPs are awarded with a Master degree, valid on the international labor market, as well as a European license to encourage mobility across the EU<sup>4</sup>.

In general, a huge majority of these professionals stay in the DSNA until they reach retirement. To encourage this the DSNA offers a vast range of career opportunities, so that its civil servants can easily switch from one location, technical field or position to another.

Today with its 7600 employees, the DSNA provides quality air navigation services for about 2,8 millions of flights, with the cheapest tax rate in Europe<sup>5</sup>.

NGAP's previous conclusions have highlighted three particular aspects: how to attract new students, how to train them, and how to counter the turn-over tendency. All these components are interdependent, so that one cannot be studied without considering the two other.

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<sup>1</sup> Statistic from the official NGAP website ([icao.int/safery/ngap](http://icao.int/safery/ngap))

<sup>2</sup> Direction des Services de la Navigation Aérienne (French ANSP)

<sup>3</sup> Ecole Nationale de l'Aviation Civile (ENAC)

<sup>4</sup> European Union

<sup>5</sup> Official 2013 DSNA's activity report

### **3. CONSIDERATION OF ISSUES**

#### **ATTRACT**

##### **GENERAL OBSERVATIONS**

In a depressed economic climate as experienced by a majority of countries, engineering students are more than ever anxious about their future. Employment security and wages are predominant over career opportunities or job satisfaction.

As a consequence of the growing globalization, students are looking for graduate generalist long-course training, thought to confer a higher security as well as to enable applying to work in another country.

A Universities' notoriety is also a component of this dynamic : reputed training providers are more likely to attract the brightest students, as they inspire reliability and offer a higher chance to integrate into the professional world.

##### **THE AERONAUTICAL SECTOR**

Since its emerged one century ago, the aeronautical sector has always instigated interest and enthusiasm. This image is mainly promoted by air companies and aircraft manufacturers. Yet it appears that the public awareness on this sector is meager, and many professions like those of the ATCO, the ATSEP, or of aeronautical technician, suffer from a severe lack of visibility that pilots do not experience.

This tendency is observed in many countries, no matter what their economical or technical situation. Advertising these professions to younger students is an obvious and unavoidable part of the solution.

Several options exist. In France for example, students from 13 on can benefit from government grants for discovering leisure flying through a number of theoretical and practical hours. As a result, most of the students who benefit from this initiative pursue studies in aeronautical fields, and themselves become great advertisers at promoting these professions to their classmates.

Short-length internships can also be an interesting vector of promotion, as they enable students to leave their classes for a few days in order to broaden their horizons. They present the advantage of being affordable for countries' educational systems, as they enable the hosting companies to promote themselves to their future potential applicants.

As a rule, a particular effort should be made to involve the youngest students. The reason is that most students' course choices are conditioned by their social environment. While having a relative working in the aeronautical sector significantly increases the chance for the student to follow this example, for most students who have no family members in the aeronautical sector, it is school that represents their only chance to discover these professions.

#### **Discussions for the group :**

- Interest of founding grants to promote leisure aviation to young students?
- Interest of promoting visits/short internships (less than one week) in ANSP's operational centers for students.
- Interest of promoting ANSP's professionals presentations in schools?
- Interest of partnerships between universities and aeronautical companies? ANSP's only?
- Your suggestions?

## TRAIN

Training is the second main component of the issue, and can be decomposed into two sub sections : where to train students, and how ?

### WHERE

The importance of the training provider's notoriety has already been treated in the previous section. Having one prestigious reference university is not necessarily the only aim, especially as some countries needs and capacities require having multiple universities across their territory, or using foreign universities to train their ATSEPs and ATCOs. Since the choice of the training provider differs from one country to another, this aspect will not be treated in this working paper. Nevertheless, the table bellow summarizes the pros and cons of each solution.

Unique reference university	Multiple universities
+ harmonized training	- risk of un-harmonized training resulting in potential incompetent personnel
+ higher national and international notoriety	- possible discrepancy among the universities, resulting in potential competition and recruitment discrimination
- limited hosting capacities	+ extendable hosting capacities
+ regulated graduation outcome	- risk of training too many students, resulting in potential social dumping or unemployment
	+ competition encourages lower training costs

### How

In a relentless effort to reduce training costs, most countries have made the choice to offer vocational short-course training to their ATSEP and ATCO students. Such vocational training leads to specialized, quickly available low-waged professionals, and is thought to be less expensive.

They are opposed to exhaustive long-course training which results in high graduate and polyvalent professionals, with higher wages, job mobility<sup>6</sup>, attractiveness and, therefore, job satisfaction.

There is a strong duality opposing cheaply-trained specialized personnel against polyvalent personnel. A common mistake would to assume short training implies lower training costs. Indeed, if training a specialized ATSEP or ATCO for 2 years seems cheaper than providing them with the rank of Master, this second option might appear to be more profitable in the long run. Part of the explanation is based on continuous training: critical sectors like ATC/ATM require up-to-date professionals to operate and maintain the complex electronics equipment. A specialized technician with lower academic bases might require longer continuous training than an engineer.

Moreover, if a single-field specialized professional wants to move on another field, it will take him far more hours of training than a master graduated professional who has already seen the basics for all fields.

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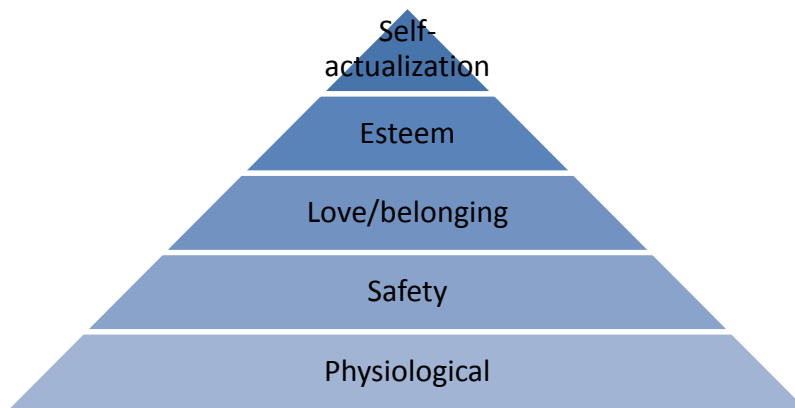
<sup>6</sup> Job mobility includes geographical, field, and functional mobility

**Discussions for the group :**

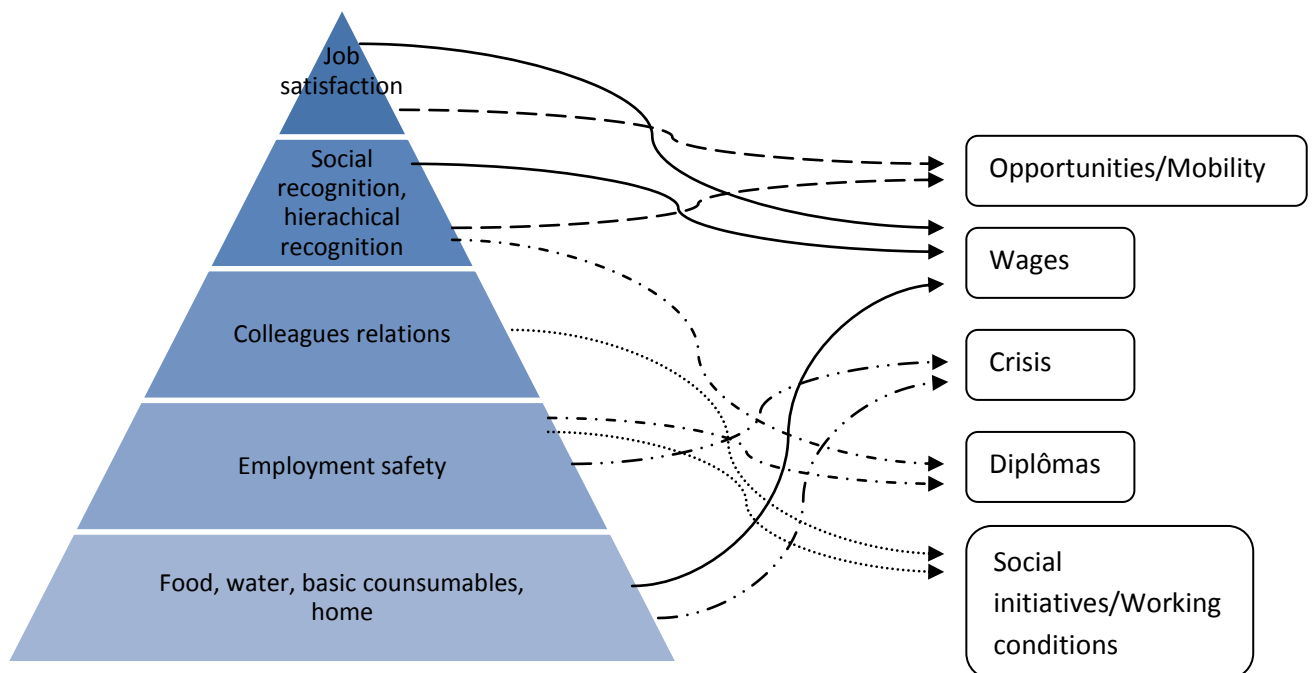
- Short vocational training vs long generalist training courses?
- Are long training courses non-motivating for students?
- Unique reference university vs multiple universities?
- University vs academies?
- Graduation vs certification?
- Your suggestions?

**RETAIN**

Preventing current ATSEPs and ATCOs from leaving their positions for more attractive ones is the last of the main concerns raised by the NGAP's conclusions. In order to explain the reasons for the turn-over experienced by many countries, you need to understand the needs and wishes of professionals. Maslow's pyramid of need is a relevant illustration for this study.



*a) Original Maslow pyramid of needs*



*b) Updated Maslow pyramid of needs for job satisfaction*

Needs depend on personal goals, and vary with age and cultural environment. For many, the salary might be the main argument for staying or leaving their positions. Some will give priority to social recognition by occupying high responsibility and visibility positions, while other will favor colleagues relations and well-being at work.

With ageing, needs change so that mobility and opportunities become predominant factors. There are three types of mobility :

- geographical : the ability to switch from one region (possibly country) to another. This kind of mobility serves mainly familial constraints. Geographical mobility is encouraged by the harmonization of competencies at the international scale like the CCC European initiative<sup>7</sup>.
- field of specialty : can a professional easily switch from one technical field to another. Technical mobility helps personal development and self-actualization. Vocational short-length courses tend to prevent such mobility at the contrary of higher graduating polyvalent courses. In France, ATSEP are trained to maintain every layer of the CNS/ATM system, while ATCO are able to ensure both airport, approach and en-route ATC.
- functional : the ability to climb the ranks. This factor is very important since it directly determines salaries. Being stuck in the same position is a sufficient reason for leaving. Inside the French DSNA, ATSEP and ATCO can switch from their initial operating responsibilities to higher positions, as project leader, research and development, management, or even teaching.

Working conditions is the last major factor in the retaining strategy. In a stressful and demanding environment such as ATC, adapted working conditions are compulsory in order to provide high quality, safe air navigation services. Such initiatives imply a larger workforce and preferential working hours, so increased operating costs.

#### **Discussions for the group :**

- How to improve job satisfaction for ANSP's professionals?
- Should you encourage mobility/opportunities for ANSP's professionals?
- How to improve social/peer recognition?
- Your suggestions?

#### **4. Financial implications**

Most of the actions suggested consist in local-scale advertising, and the cost for such promotion can be assessed as negligible to low. They could be shared between public (states, schools) and private (ANSP's, etc) funds.

However, we could argue over the interest of whether the ICAO should oversee/fund these advertising programs.

The question of training costs must also be considered, and the pros and cons listed. Are short vocational trainings really less expensive than generalist ones in the long run?

Does this relentless need to reduce costs harm air security?

What would be the financial impact of a shortage in ATSEP/ATCO professionals?

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<sup>7</sup> The Common Core Content is a Eurocontrol initiative which aims to harmonize ATSEP and ATCO minimum competencies by enacting training specifications.

## 5. Actions

Special attention should be paid to **promote the lesser known aeronautical professions for the younger students**. Since they will mostly depend on their social environment, schools seem to be the only suitable place. Such promotion can be achieved in different ways :

- In-class awareness sessions, where ATSEP and ATCO professionals would spend few hours to introduce their daily work.
- Promoting leisure aviation through grants. Beneficiaries of these initiatives will promote the aeronautical sector to their classmates.
- Short-term internships, where the opportunity would be given for students to discover the reality of ATSEP and ATCO work.

Training providers should **encourage long generalist courses** rather than vocational ones, since they are more attractive to students, and enable more opportunities and job satisfaction for those in service, thereby preventing them from quitting. Training costs should not be an issue, since a cheaply trained professional with a higher chance of quitting represents a greater loss than a highly qualified and satisfied professional with motivating career opportunities.

Supporting career mobility is a major concern in order to retain professionals once hired. Higher academic degrees help to stimulate career progression, as well as to enable technical and functional mobility. The opportunity should be given to professionals to move for higher responsibility positions such as : team/project leader, research and development, teaching, managing.

## 6. Conclusion

The current paper does not have the pretention to give unquestionable actions to solve this considerable issue. All the actions listed above are suggestions that have to be put in perspective since their implications may vary from one country to another.

This Council simulation aims to collect the testimonies of the next generation of air professionals in order to cast a more accurate light on their preoccupations and concerns. Therefore any suggestion, no matter how biased they could be, must be valued.

From the studying of all these testimonies, the final objective is to elaborate a common guideline of recommendations which should fit to the largest number of member states.

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