

Action

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Closed-ended

Open-ended

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Introduction



ICAO

CNS SG/24 – WP/25

**Agenda Item 10: Human Factors and Air Traffic Safety
Electronics Personnel (ATSEPs) related training**

**REVIEW OUTCOMES OF SMALL WORKING GROUP
STUDY ON HUMAN FACTOR ISSUES OF ATSEP**



**International Federation of Air Traffic Safety
Electronics Association (IFATSEA)**

www.ifatsea.org

Web-conference,

30 November – 4 December 2020



Action

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Introduction

WP/25 : Summary

IFATSEA has initiated the study with the following objectives

- To study the human factor issues of ATSEP on their working environment
- Identify the significant factors that add stress and fatigue and affect their safety job performance.
- To understand the stress and fatigue levels of ATSEP and for resolving potential risks to ANS
- Identify the significant counter measures
- Identify the means for improving the safety culture and professional engagement

The study found that the human performance management maturity levels of ANSPs w.r.t ATSEP are in the very early stages and there are scopes for improvements.



WP/25 para : 1.1 to 1.9 Introduction

1.1 IFATSEA, had elaborated the factors that cause the human factor issues to the ATSEP and the possible impacts on safety and efficiency in airports operations and air navigation services in the paper **CNS SG/23 – WP/19 Agenda Item 9, “Factors adding stress and fatigue to ATSEP and the need for a study”**

1.2 References were drawn from existing best practices, and correlated the human factor issues of ATSEP, including stress and fatigue, and the **outcome of the study is presented in this CNS SG/24 meeting with recommendations and further scope of work for the discussion.**



Introduction



WP/25 para : 1.1 to 1.9 Introduction

1.3 Due to various constraints including Covid-19, the phases as per initial plan got delayed and couldn't be completed. So, went for the revised strategies and plans with different phases.

1.4 However, all the revised phases were executed, and the study was conducted globally, by involving ATSEP from at least 40 states on each phase.

Interactions



Afghanistan	Montenegro
Albania	MOROCCO
ALGERIA	Mozambique
ANGOLA	NEPAL
Argentina	NETHERLANDS
BELGIUM	Niger
Bolivia (Plurinational State of)	NIGERIA
BULGARIA	North Macedonia
Burkina Faso	Pakistan
CAMEROON	Peru
CANADA	PHILIPPINES
CHILE	PORTUGAL
Cyprus	ROMANIA
Czechia	Russian Federation
Democratic Republic of the Congo	Rwanda
Dominican Republic	Saudi Arabia
EGYPT	Senegal
Ethiopia	SERBIA
FIJI	Seychelles
GAMBIA	SLOVAKIA
Georgia	Slovenia
GERMANY	Somalia
GHANA	South Africa
GREECE	SPAIN
Guinea-Bissau	SRI LANKA
HONG KONG	SUDAN
INDIA	SWEDEN
INDONESIA	Switzerland
IRAN (Islamic Republic of)	TANZANIA
IRELAND	Tunisia
JAPAN	UAE
Kenya	UK
KOSOVA	Ukraine
LIBYA	United Republic of Tanzania
Malta	USA
MONGOLIA	YEMEN

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Registrations received from



regdir_apac@ifatsea.org
senthilvel.balasubramanian@ifatsea.org



WP/25 para : 1.1 to 1.9 Introduction

1.5 The “**Learning from the bottom**” approach was adopted so that the entire spectrum of issues from different workplaces are captured.

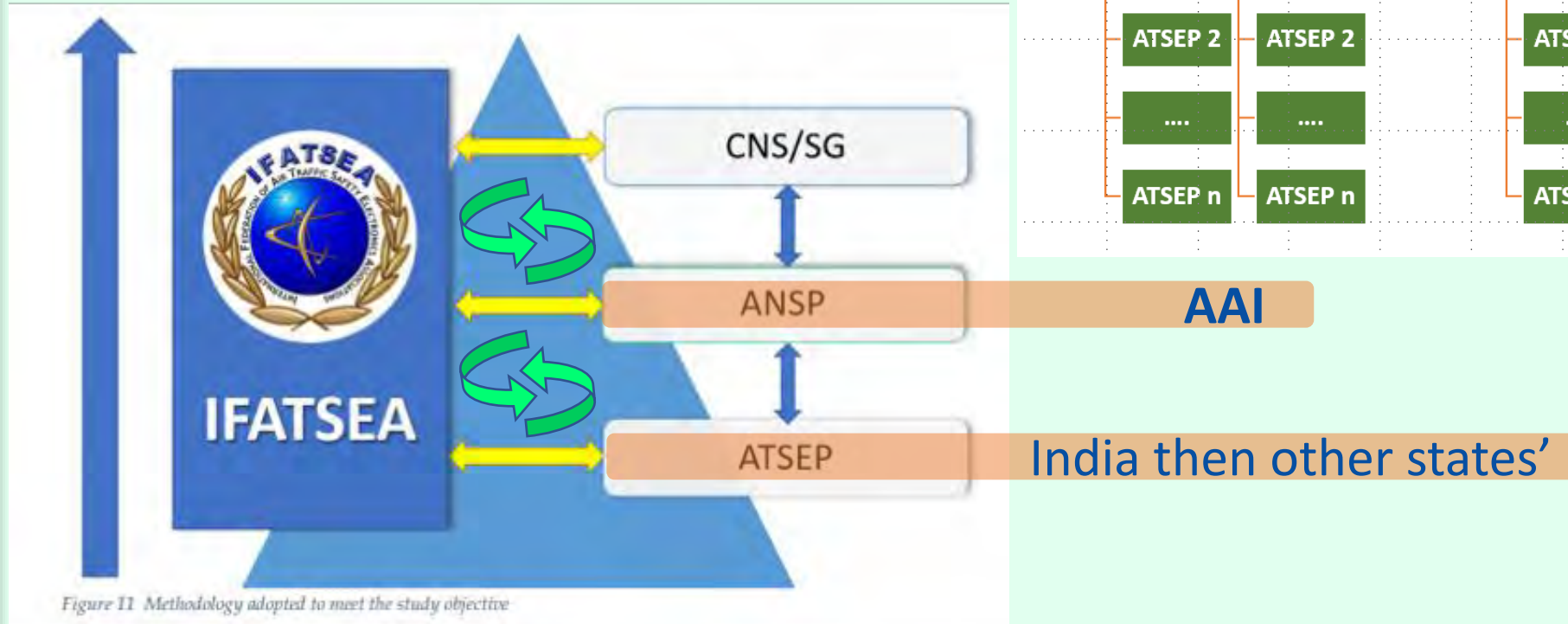
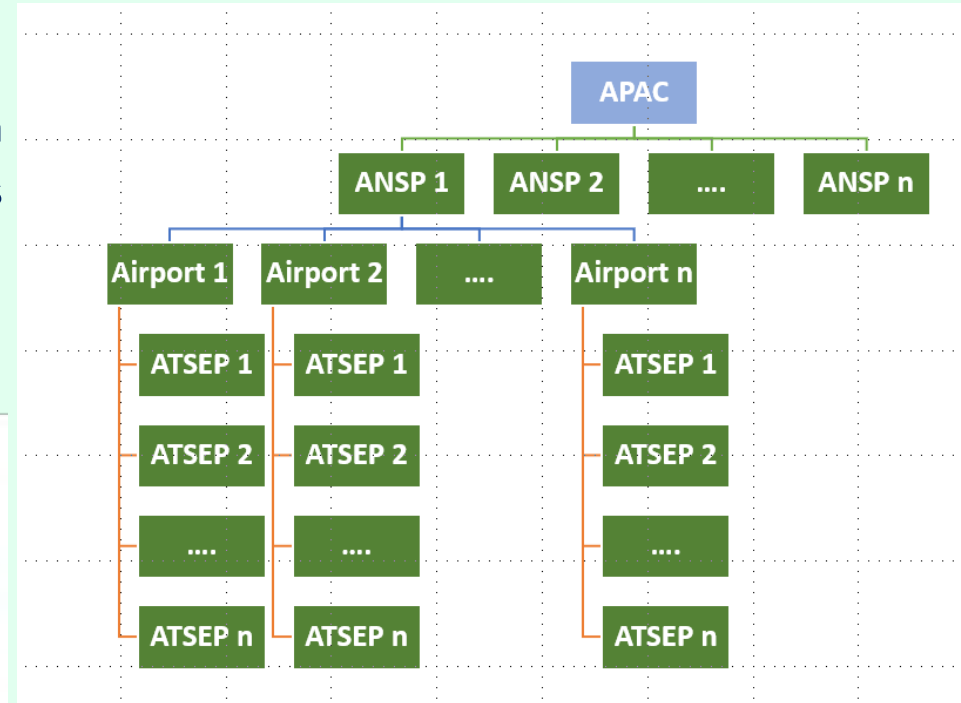


Figure 11 Methodology adopted to meet the study objective





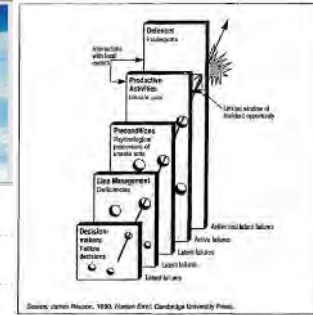
WP/25 para : 1.1 to 1.9 Introduction

1.6 The following process / stages were followed for the study;
 Literature research,
 personal interaction,
 Open-ended online survey,
 grouping of the factors,
 Closed-ended online survey and
 data processing and validation of countermeasures assumed in the early stages of the study.

1.7 ICAO's Human factors training manual is taken as a fundamental reference and SHELL model and REASON's model were taken for presenting the study to all participants. However, PEAR model and DIRTY DOZEN models were referred for further analysis of the inputs received.



HUMAN FACTORS TRAINING MANUAL



The PEAR Model



- PEAR is easy to remember
- It works for maintenance
- It is matched with the SHELL model



THE DIRTY DOZEN Twelve human factors for aircraft maintenance proficiency		
Lack of Communication	Lack of Teamwork	Lack of Assertiveness
Complacency	Fatigue	Stress
Lack of Knowledge	Lack of Resources	Lack of Awareness
Distraction	Pressure	Norms

Interactions



Introduction



WP/25 para : 1.1 to 1.9 Introduction

1.8 As discussed in the CNS SG/23 the **key references were taken from** the links shared in the report of the meeting CNS SG/23 from **the public domain of FAA and CANSO**. In addition to these documents, documents from **EASA / EUROCONTROL** and other international organizations were referred.

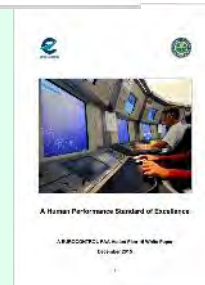
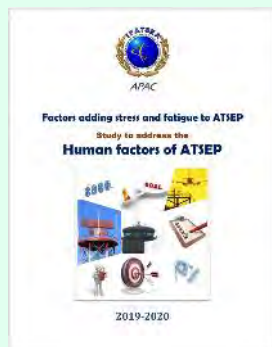
1.9 The detailed study report is given as attachment and only key points; recommendation and further scope of the study are given in this WP.



Interactions



Introduction





WP/25 para : 2.1 to 2.5 Interactions with ATSEP

2.1 Interactive sessions on different slots were arranged at three major airports of India, namely **Mumbai, Bengaluru and Kolkata**. The key objectives set for the interactive sessions were to enable the ATSEP, **to list** the factors that add stress and fatigue by themselves, **arrange them in the order of severity, identify** whether it's an internal issue or an external issue and finally **to suggest counter measure** to mitigate the issues

2.2 Based on the time availability, **one or more rounds of choices** were given to the participants and they were insisted to come out with a new factor that was not listed earlier by them.



Interactions

Introduction

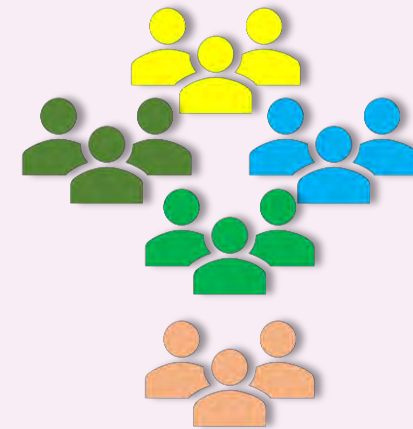


WP/25 para : 2.1 to 2.5 Interactions with ATSEP

2.3 When time permitted, they have been asked to **arrange the factors in the order of severity, identify** whether it's an internal issue or external issue and finally to suggest counter measure to mitigate the issues as per the objectives.

2.4 Whenever a new group was called for different session, **they were not shown any factors listed by the earlier group** so that we could find out the common issues among groups irrespective of the airports and units they serve.

2.5 These initial interactions have **confirmed that there are issues that need to be addressed scientifically as early as possible.**



Interactions
Introduction

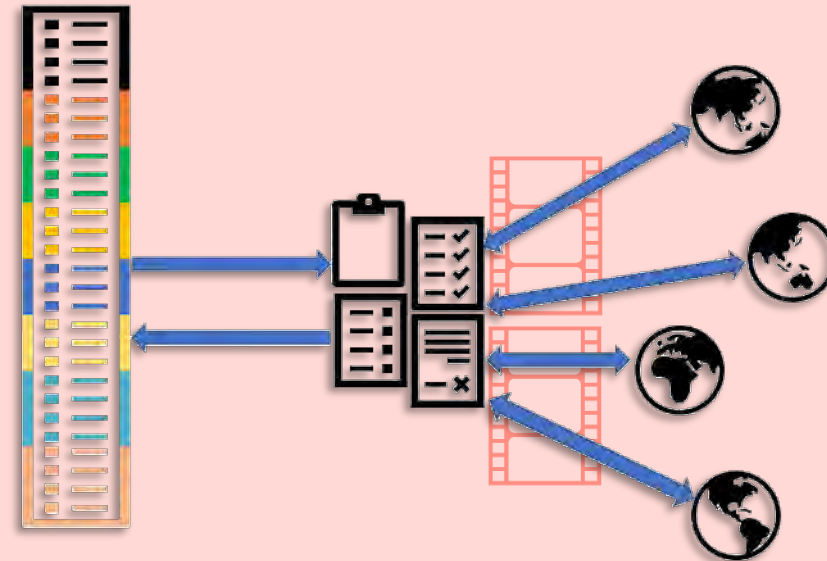
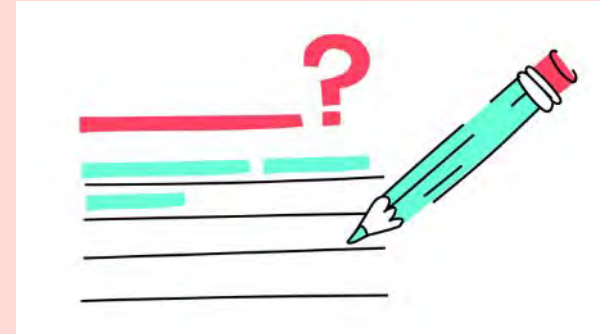


WP/25 para : 2.6 to 2.12 Open-ended online survey

2.6 After seeing the response from a limited group of ATSEP from India, **IFATSEA decided to extend the similar interaction to different parts of the world.**

2.7 To simulate the exact actions that were done during the personal interactive sessions, **online participants were asked to go through the video presentations before answering the questions. And they were asked to list at least three significant factors and maximum of eight factors.**

2.8 Online participants were asked more information than what was asked in the interactive session for using these data for further study at a later stage.



Open-ended

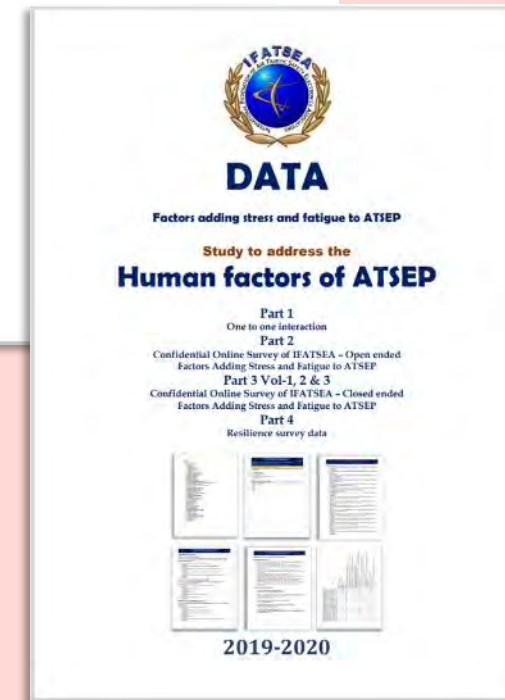
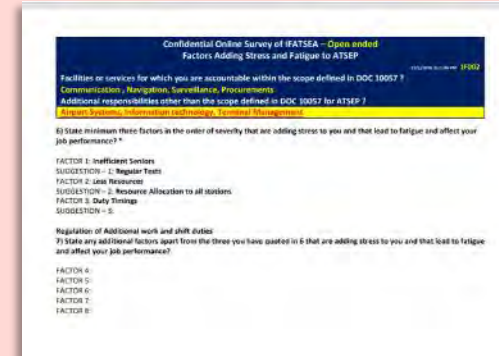
Interactions

Introduction



WP/25 para : 2.6 to 2.12 Open-ended online survey

2.9 Only inputs received on selected questions from 289 forms were taken for the analysis as they were meeting the objectives of the study. 1400+ statements received from these 289 participants. While processing all the statements, reference materials from ICAO, FAA, CANSO and EASA were considered.



Open-ended

Interactions

Introduction

Closed-ended



WP/25 para : 2.6 to 2.12 Open-ended online survey

2.10 The discrete statements were combined scientifically for easy reference and for further study into eight groups of statements.

1. Knowledge, Skills, Attitude, Competency and technology optimization,
2. Workload management,
3. Procedures, Information, Tools and Practices,
4. Duty time limitation – Shift (day/night/late),
5. Stress, Fatigue, Pressure, Time pressure and deadlines,
6. Lack of knowledge, communication, teamwork and leadership,
7. Selection, HR and other policies,
8. Workspace facilities / environment.

Closed-ended



Open-ended

Interactions

Introduction



WP/25 para : 2.6 to 2.12 Open-ended online survey

2.11 Having taken a wide range of input and categorized into eight groups, the following could be concluded. **ATSEP human factor issues are universal** in nature. Irrespective of the maturity levels of ANSPs in the human performance management w.r.t to the ATCOs, the maturity levels of **human performance management system w.r.t ATSEP** were low and mostly it is in the **initiating stage only**. Analysis was done based on PEAR model and for error issues Dirty Dozen was also applied

Closed-ended



Open-ended

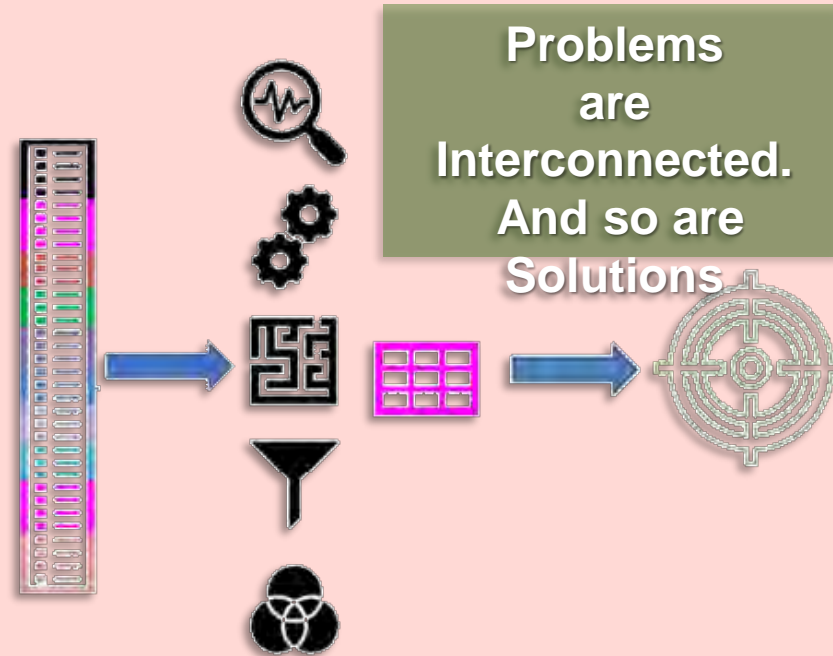
Interactions

Introduction



WP/25 para : 2.6 to 2.12 Open-ended online survey

2.12 Each significant factor was analyzed in various angles and **probable counter measures were identified**. It was decided to go for **a closed-ended survey** with all counter measures into the questionnaire and reach once again all ATSEP for participating in the online survey.



Open-ended

Interactions

Introduction



WP/25 para : 2.13 to 2.16 Closed-ended online survey

2.13 ATSEP are provided with options from which they choose a response. Most of the questions were based on the significant factors and their counter measures.

2.14 It was decided to measure the safety culture, human performance management maturity levels and competency development framework within the organization.



Closed-ended

Open-ended

Interactions

Introduction



WP/25 para : 2.13 to 2.16 Closed-ended online survey

2.15 Since we wanted more than those who have participated in the open-ended survey and to engage more ATSEP for validating the counter measures, **the questionnaire was translated into Arabic, French, Japanese and Persian languages in addition to English version.**

2.16 Most of the initial counter measures have been validated by ATSEP. At the end of this stage almost **all the significant stress factors and their counter measures were matched and validated.**





WP/25 para : 2.17 & 2.18 Global webinars

2.17 In addition to the interactions and online surveys, **two global webinars were also conducted** for deliberating some of the human factor issues and to discuss the benefits of addressing the human factor issues.

The Regional Director, IFATSEA, APAC Invites you to join

Webinar
Transforming our team into a high performing team
SEP 6th, 2020
1430 - 1700 IST
0900 - 1130 UTC

with the team leaders from Sri Lanka, Nepal and India

IFATSEA, Regional Director, Asia Pacific Invites you to join

Webinar
Taking off into the perfect storm. Seeing positive in negative
OCT 31st 2020
1415 - 1715 IST
0845 - 1145 UTC

with the panelists from Sri Lanka, Nepal and India



Global webinars

Closed-ended

Open-ended

Interactions

Introduction



WP/25 para : 2.17 & 2.18 Global webinars

2.18 The first webinar was deliberated on high performing team.

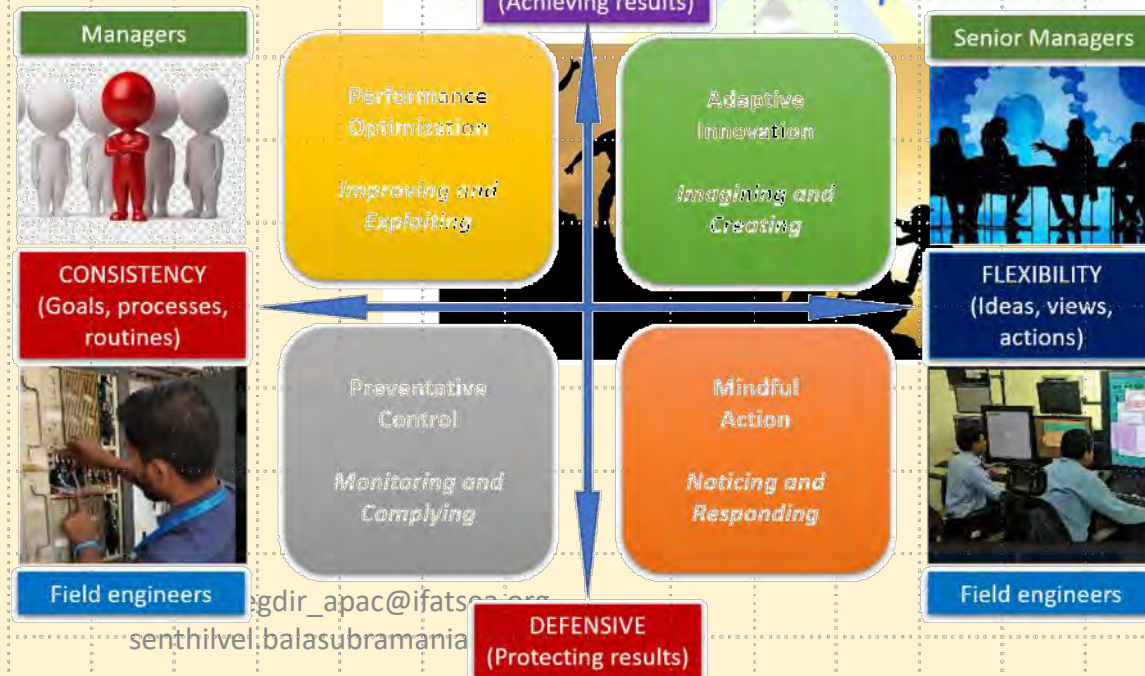
And the second one was on ANSPs resilience levels and their relationships with the competencies of ATSEP.

During the second webinar, through a short duration polling, once again some of the factors and counter measures were taken up with the global ATSEP for their inputs.



*see the invisible inches .
communicates.*

and responsibilities.



Global webinars

Closed-ended

Open-ended

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Introduction

Recommendations



WP/25 para : 2.19 to 2.26 Recommendations

2.19 After the entire process that we have discussed above, **final consolidated counter measures and significant factors were listed as recommendations in the Chapter 10 of the study report.**

2.20 Most important measures that ANSP need to take on priority are listed in the **conclusion chapter and the same points are repeated here below.**

Further scope

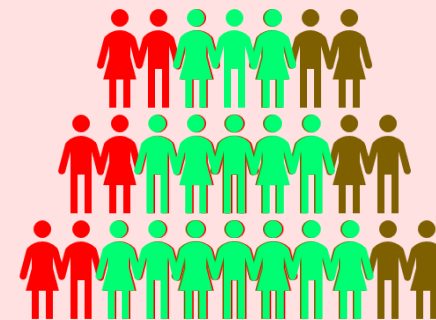




WP/25 para : 2.19 to 2.26 Recommendations

2.21 Clear job description, roles, responsibilities and deployment as per DOC 10057 so that core competency is developed and retained, and safety performance is assured. Defining accountabilities as per seniority with clear demarcation on technical as well as managerial aspects to avoid ambiguities.

2.22 Rationalizing existing human resources to carry the existing safety tasks and for developing necessary KSA and competency with job rotation. Regular recruitment in phased manner to supplement retirement and for augmenting the new additional facilities.




Recommendations

Global webinars

Closed-ended

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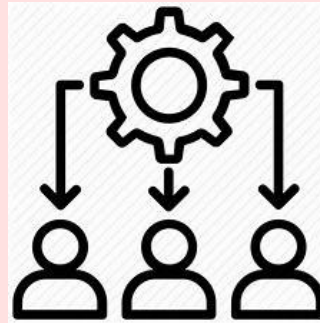
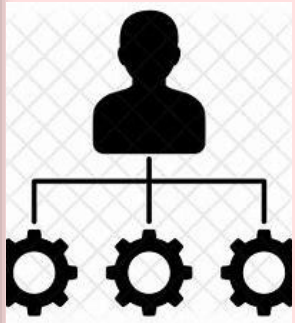
Interactions

Introduction



WP/25 para : 2.19 to 2.26 Recommendations

2.23 **Scientific resource allocations** as per the number of complex systems and number of simultaneous tasks assigned to team. **Structured workload distribution** with reward and punishment mechanism for safe and non-safe performance, so that undue overload of work is prevented.



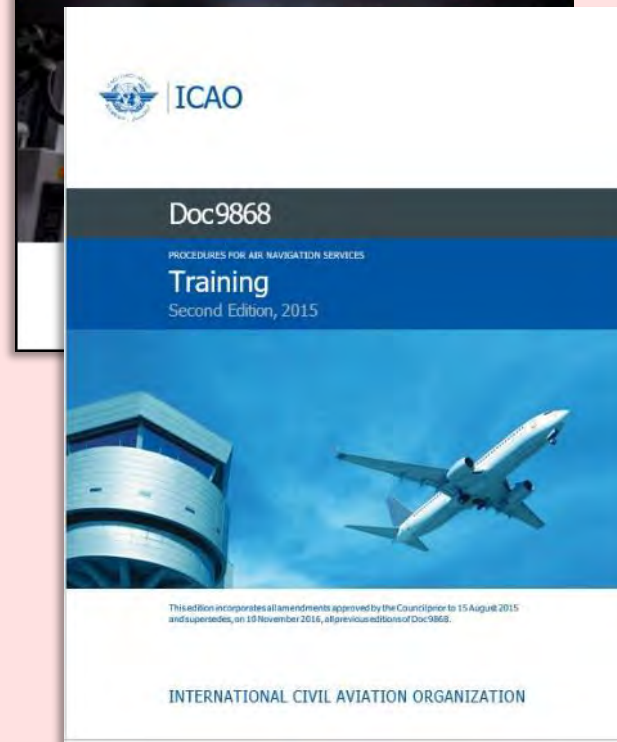
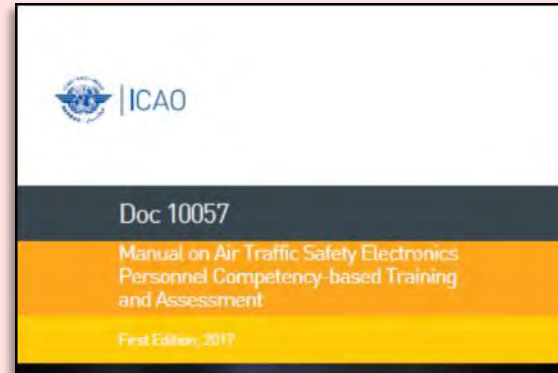
Further scope





WP/25 para : 2.19 to 2.26 Recommendations

2.24 Implementation of all the phases of CBT/A as per DOC 9868 and DOC 10057 based on the roles and responsibilities of ATSEP and competency requirements. Augmentation of training infrastructures for required KSA and competency development in line with the successive induction of technologies.



Further scope



WP/25 para : 2.19 to 2.26 Recommendations

2.25 Scientific shift duty duration and pattern with breaks in shifts and weekly clear OFFs for managing the fatigue and sleep management. Flexible working hours to general maintenance and project teams, after long work hours without break at remote sites either due to late hour calls, breakdown maintenance, VVIP movements and on installation activities.



Recommendations

Global webinars

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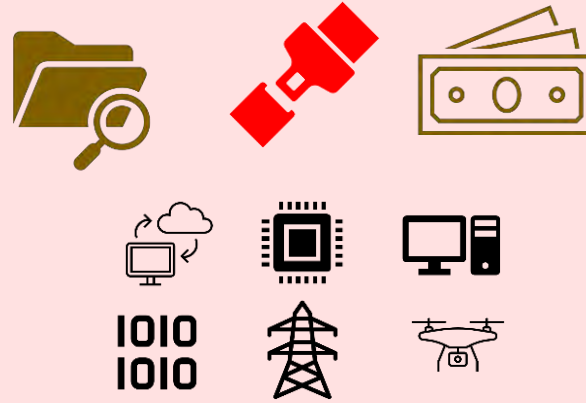
Introduction

Further scope



WP/25 para : 2.19 to 2.26 Recommendations

2.26 Procurement policies by keeping long term safety objectives above cost of acquisition, for suiting the quick induction of the best available latest technologies and for best contract support after the acquisition. Service life expansion of old and obsolete equipment based on spare support contract and on the availability of optimum number of competent ATSEP on old technology.



Further scope



WP/25 para : 2.27 to 2.29 Further scope of work

2.27 WG and CNS /SG 24 meeting may decide whether to extend the study to all APAC states or to **review and enhance the chapter 7 and chapter 10 collectively** in the coming days. Then we can proceed for a **voluntary check in the APAC states on finding the maturity levels**. IFATSEA is willing to contribute either way.



Figure 11 Methodology adopted to meet the study objective

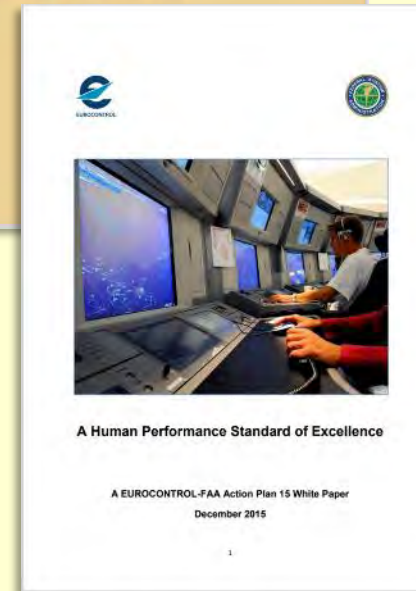




WP/25 para : 2.27 to 2.29 Further scope of work

2.28 IFATSEA proposes to make a detailed human factor regional guidance material for the self-evaluation by states w.r.t ATSEP job profile and working environment. This regional guidance material shall enable the states to benchmark themselves and attain higher level of maturity in assuring the human performance.

2.29 Though there are several manuals and guidance materials available, IFATSEA, APAC would like to prepare a human factor training material for ATSEP, for the benefit of the regional ATSEP and ANSPs.



Action



WP/25 para : 3.1 Action by the meeting

3.1 The meeting is invited to:

- a) Discuss on the study, study's recommendation and on further scope of work proposed by IFATSEA
- b) Recommend and invite more volunteers on proceeding with the further stages.

Draft Conclusion/Conclusion/Decision XX/XX - REVIEW OUTCOMES OF SMALL WORKING GROUP STUDY ON HUMAN FACTOR ISSUES OF ATSEP

What:

The states are urged to utilize the recommendations made out of the study for **their self-evaluation and for necessary pro-active measures.**

States are also urged to join the WG for finding the left-out gaps and in preparing the regional human factor guidance material.

IFATSEA will develop human factors training guide for ATSEP for voluntary use by interested states.

Expected impact:

- Political / Global
- Inter-regional
- Economic
- Environmental
- Ops/Technical

Why:

To encourage initiating the human performance management of ATSEP in practice and progress further.

Follow-up:

- Required from States

When:

4-Dec-20

Status: Draft to be adopted by PIRG

Who:

Sub groups APAC States ICAO APAC RO ICAO HQ Other: XXXX

