



**Agenda Item 11:** Capacity Building, including Human Factors and Air Traffic Safety Electronics Personnel (ATSEPs) related training

11.1 Review outcomes of small working group study on human factor issues of ATSEP

**(Presented by Secretariat and IFATSEA)**

# SUMMARY



- **This paper presents the regional ATSEP human factor guidance material for adoption** and the efforts taken for improving the presentation of the guidance material and ease of use by the states. This paper also summarized the key concepts based on which the guidance material is prepared for assuring the mutual benefits to ANSP and ATSEP.



1.1

IFATSEA Presented  
the need for a study

CNS SG 23

CNS SG 24

IFATSEA Presented  
Study report

1.1

1.1

Ad-hoc work group  
of 8 states and  
IFATSEA

AP022/21(CNS)

*China,  
Hong Kong China,  
India,  
Indonesia,  
Japan,  
Republic of Korea,  
Singapore, and  
Thailand*

**providing guidance to States, Air Navigation  
Service Providers, and their key taskforce  
‘ATSEP’ on improving the human performance  
by addressing the key stress factors through  
effective countermeasures**



1.1

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*(12 online meetings and extended discussion sessions)*

*Please read Chapter 1 for the key concepts based on  
which this guidance material is developed.*

CNS SG 25

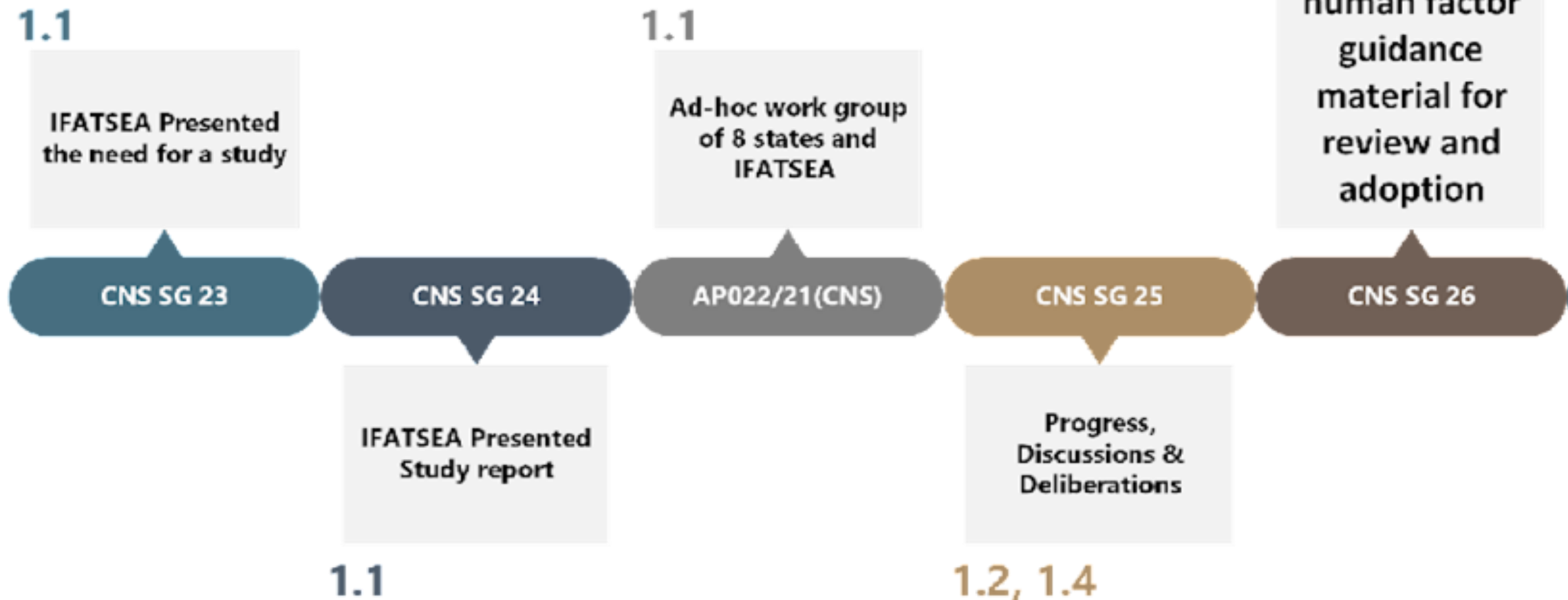
Progress,  
Discussions &  
Deliberations

1.2, 1.4





*10 Chapters and 8 Appendices*  
*Five sets of Self evaluation Check Lists*



# Introduction



1.1

Ad-hoc work group  
of 8 states and  
IFATSEA

CNS SG 24

IFATSEA Presented  
Study report

1.1

AP022/21(CNS)

CNS SG 25

Progress,  
Discussions &  
Deliberations

1.2, 1.4

CNS SG 26

1.3, 1.5, 1.6

The Ad-hoc  
work group  
presented the  
regional ATSEP  
human factor  
guidance  
material for  
review and  
adoption

AP130/22

For comments and  
observations

1.7

# Introduction



1.1

Ad-hoc work group  
of 8 states and  
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AP022/21(CNS)

CNS SG 25

Progress,  
Discussions &  
Deliberations

1.2, 1.4

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CNS SG 26

AP130/22

For comments and  
observations

1.7

1.8



reviewed the  
guidance  
material for  
better  
presentation,  
readability,  
and usage

CNS SG 27



# Comments and observations received

## 2.1

- ***Australia, Sri Lanka and United States*** have shared that they have no comments on the guidance material.
- No other comments were received.

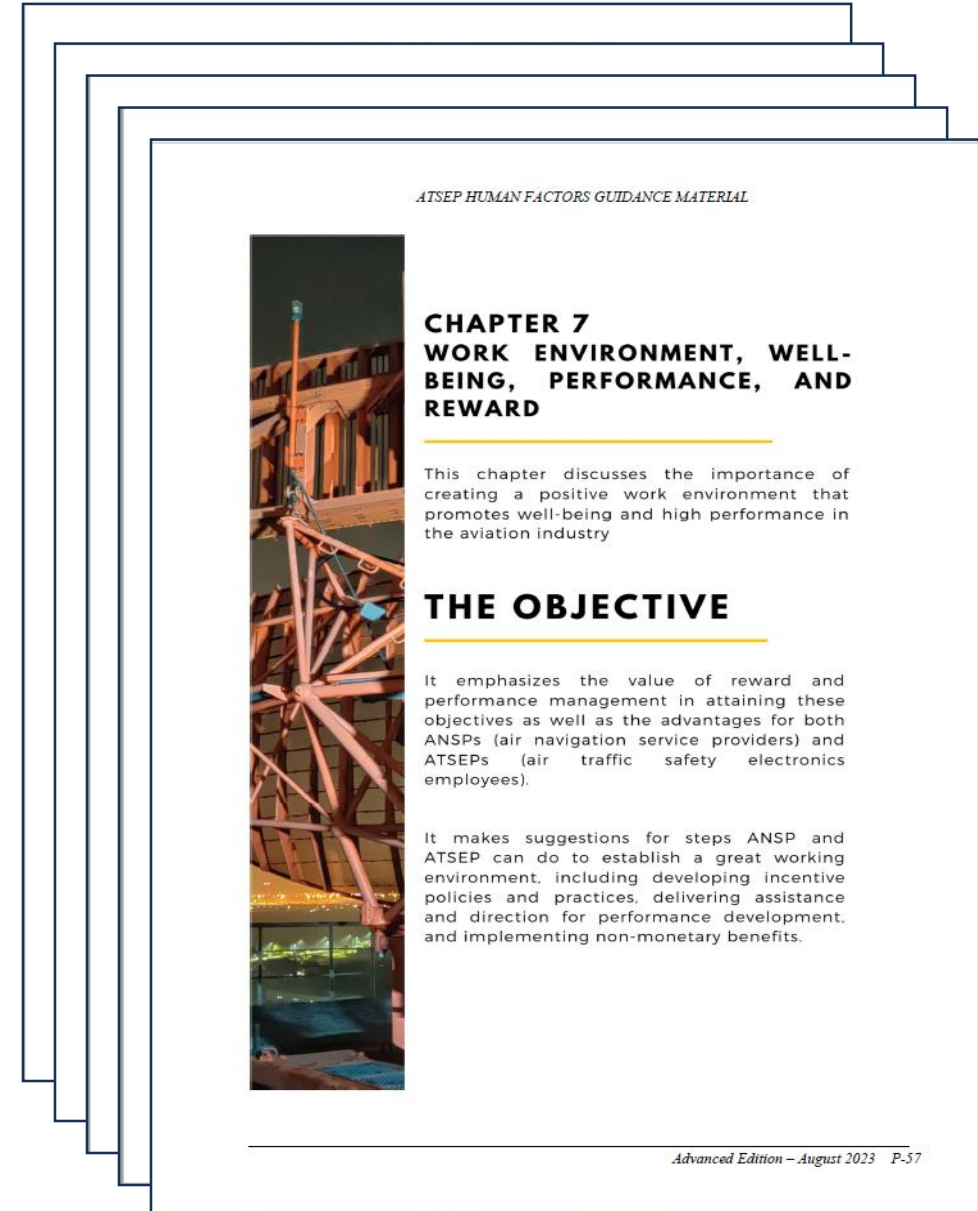




# Revision in the guidance material

2.2

- All the main chapters remain the same.
- The following five chapters are with evaluation check lists
- (3) People Resourcing,
- (4) Job, Role and Skills Analysis and Competency Modelling,
- (5) Knowledge Management, Talent Management, Learning and Development,
- (6) Induction of New Systems and Maintenance Philosophy, and
- (7) Work Environment, Well-Being, Performance, and Reward.

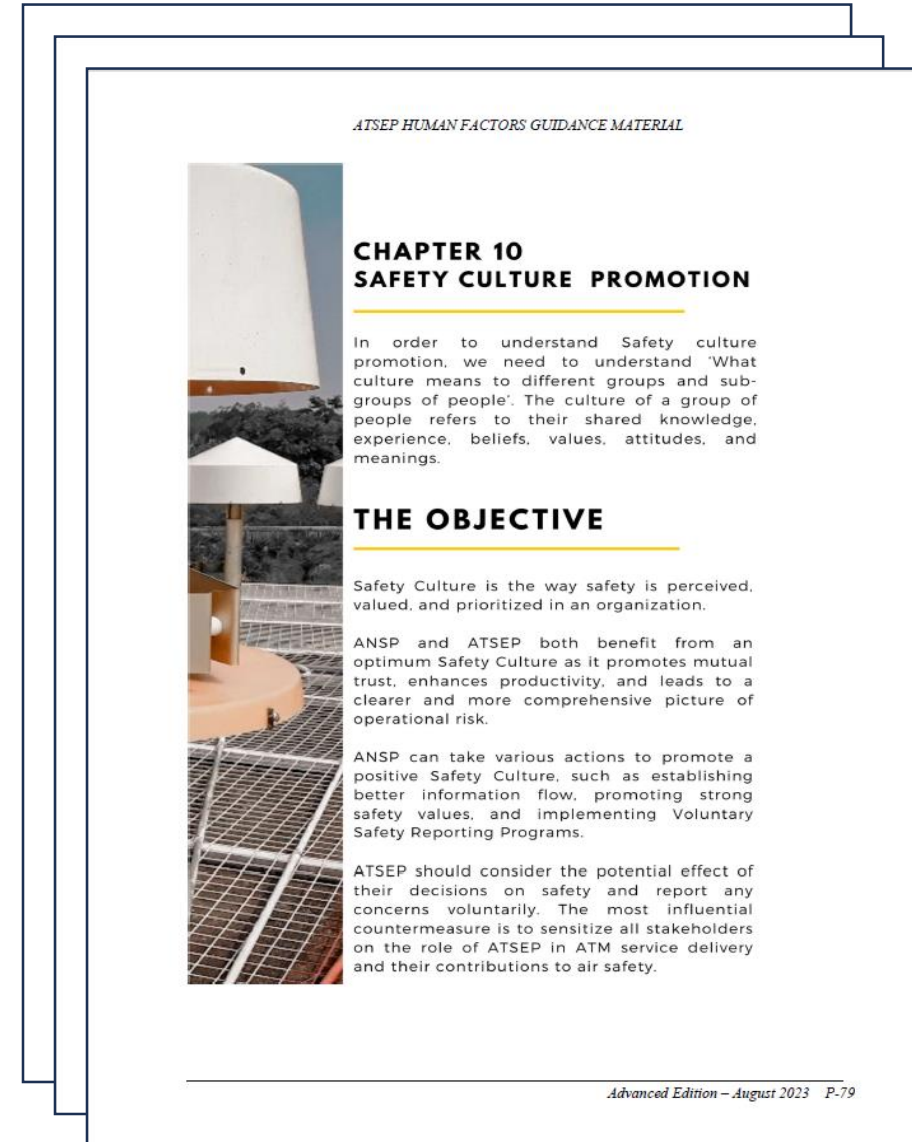




# Revision in the guidance material

## 2.3

- *In addition, the guidance material has the following three chapters without evaluation check lists*
- *(8) Motivation, Commitment, And Engagement,*
- *(9) Behavioural and Role Specific Competencies, And*
- *(10) Safety Culture Promotion.*

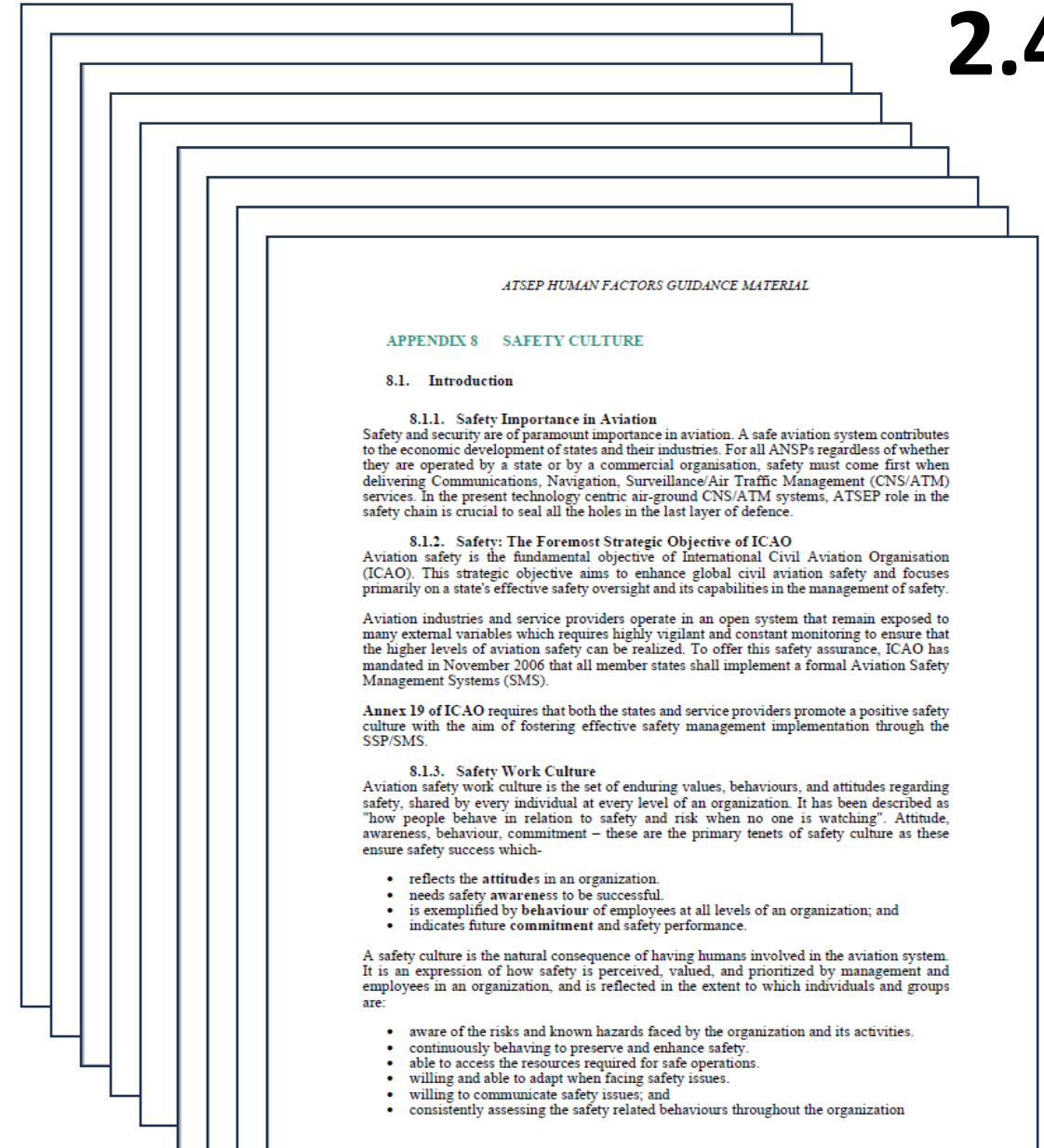




# Revision in the guidance material

2.4

- *Appendix (9) is added for providing all the checklists at one place for better usability. along with following eight appendices*
- *(1) Stress Factor Mapping*
- *(2) Stress Factors,*
- *(3) Countermeasures,*
- *(4) ATSEP Duty Time Limitation,*
- *(5) Measures During Pandemic,*
- *(6) Progressive Training,*
- *(7) Stress Management and*
- *(8) Safety Culture,*







# Revision in the guidance material

## 2.5

- *Figures 3 and 4 were removed and five more figures are added for keeping the guidance material simple and*
- *compendium figures are made for promoting the awareness of the benefits among the stakeholders and about this guidance material,*

ENDLUM



Figure 17: Compendium Picture 1



Figure 19: Compendium Picture 3



# Revision in the guidance material

## 2.6

- In addition to acronyms, a list of key words along with short descriptions are added.*

### ATSEP HUMAN FACTORS GUIDANCE MATERIAL

#### KEYWORDS

Approach and Avoidance Systems	This is a psychological construct that represents the conflict in motivation to move forward or to move away from an undesired result.
Behavioural and Functional Competencies	Behavioural requirements are specifications of user interactions with a system often represented as use cases. Functional requirements are business specifications such as calculations, business rules and process flow.
Circadian Rhythm	These are 24-hour cycles that are part of the body's internal clock, running in the background to carry out essential functions and processes.
Competency Modelling	Competency modelling is a systematic approach used in human resource management to identify and define the key competencies required for successful performance in specific roles within an organization. Competencies are a set of knowledge, skills, abilities (KSA) combined with behaviour, and other personal attributes that individuals need to effectively carry out their job responsibilities.
Computer-based Maintenance Data Analysis	Computer-based maintenance data analysis refers to the process of using computer systems and software to analyze and draw interpretation from maintenance data collected from various sources. It is a valuable tool for maintenance professionals to make informed decisions and optimize maintenance practices. It leads from reactive to proactive maintenance approach.
DIRTY DOZEN Model	The Dirty Dozen refers to twelve of the most common human error preconditions, or conditions that can act as precursors, to accidents or incidents. These twelve elements influence people to make mistakes. It covers the following dozen factors: 1.Fatigue 2.Stress 3.Complacency 4.Communication 5.Awareness 6.Distracted 7.Lack of knowledge 8.Teamwork 9.Lack of resources 10.Pressure 11.Lack of assertiveness 12.Norms
Double Bind Situation	A situation where opposing interests of safety and judiciary must be served and satisfied.
Extraversion	Extraversion has different emphases in different measures. Sometimes it is based in assertiveness, sometimes in spontaneity and energy. Sometimes it is based in dominance, confidence, and agency, sometimes in a tendency toward happiness.
Human Performance Management	As an ongoing process of identifying, measuring, assessing, and developing the performance of the employees in the organization.
Just Culture	A Culture where front-line operators or other personnel are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but in which gross negligence, wilful violations and destructive acts are not tolerated.





# Revision in the guidance material

## 2.7

- *With aforementioned, the ad-hoc group submits the revised ICAO ATSEP human factors guidance material. The guidance material is provided in Appendix A to the paper for meeting adoption.*

## Action by the meeting

### 3.1

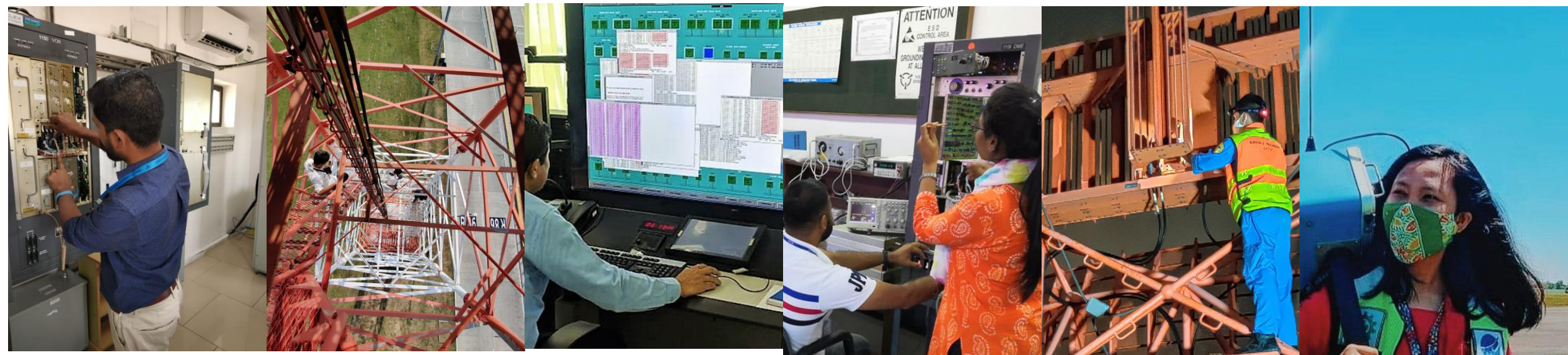
- The meeting is invited to:
  - a) note the information on the revised guidance material.
  - b) adopt the guidance material.
  - C) discuss any other matter as appropriate.



ICAO

The Twenty Seventh Meeting of the Communications, Navigation and Surveillance Sub-group (CNS SG/27) of  
APANPIRG

(Bangkok, Thailand, 28 August to 1 September 2023)



**Thank  
you**

(Presented by Secretariat and IFATSEA)





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# Extra Slides

(Presented by Secretariat and IFATSEA)

## **Self-Evaluation Check list for ANSP**

### **Human performance management processes maturity level** **Self-Evaluation Check list for ANSP – PEOPLE RESOURCING**

##	Process	Maturity level	Description of the maturity level	Tick
1)	Strategic people resourcing for <b>directly addressing</b> the factors that are adding stress and fatigue to ATSEP due to over workload and due to lack of human resources	<b>Level A</b>	Human performance management processes and/or requirements have not been agreed at the organization level – they are either not routinely undertaken or depend on the individual assigned the task	
		<b>Level B</b>	Human performance management processes and/or requirements are defined but not yet fully implemented, documented, or consistently applied.	
		<b>Level C</b>	Human performance management processes and/or requirements meet the required regulatory standards and comply with relevant ICAO Annexes. Human performance management processes and/or requirements are formally documented and consistently applied	
		<b>Level D</b>	Evidence is available to provide confidence that human performance management processes and/or requirements are being applied appropriately and are delivering positive, measured results.	
		<b>Level E</b>	Human performance management processes and/or requirements set international best practice, focusing on innovation and improvement. The effectiveness of the human performance management improvement actions is measured and evaluated against defined improvement criteria	

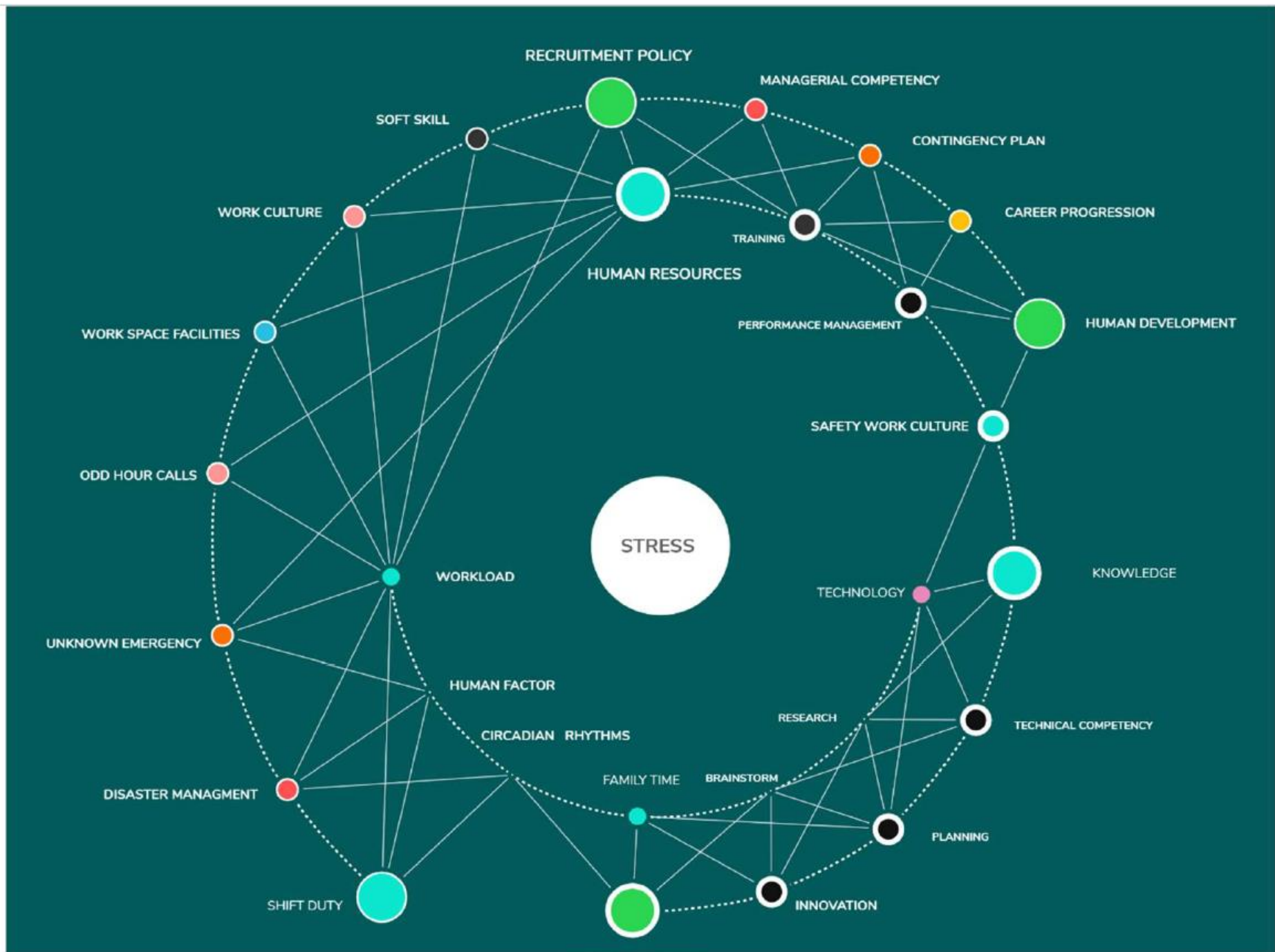


2)	Strategic people resourcing for <b>indirectly addressing</b> the factors that are adding stress and fatigue to ATSEP due to over workload and due to lack of human resources	Level A	
		Level B	
		Level C	
		Level D	
		Level E	
3)	Strategic people resourcing for addressing the factors that are <b>aggravating</b> stress and fatigue when the workload is more, and human resources are less	Level A	
		Level B	
		Level C	
		Level D	
		Level E	

<b>4)</b>	<b>Resilience Level</b> w.r.t score of (1)	A & B – Preventative Control, C- Mindful action, D-Performance optimization, E – Adaptive innovation
<b>5)</b>	<b>If maturity level is D</b> w.r.t score of (1)	
	Do you have workforce planning based on projected changes?	Y/N
	Did you recruit people as per the workforce planning?	Y/N
	Did you provide better opportunities and better working conditions to your people?	Y/N
	<i>If your score is one or more “N,” please assume the immediate lower level of maturity and take necessary measures to reach the next level.</i>	
<b>6)</b>	<b>If maturity level is E</b> w.r.t score of (1)	
	Did you revise the workforce planning in the last two years?	Y/N
	Did you revise the recruitment process to suit the safety and service strategy?	Y/N
	Are you able to get more competitive people successively from the market?	Y/N
	Have you set the key performing indicators for measuring the above?	Y/N
	<i>If your score is one or more “N,” please assume the immediate lower level of maturity and evaluate</i>	
	<b><i>If your final level of maturity is D or E, please ascertain with the self-evaluation of ATSEP</i></b>	

**Human performance management processes maturity level**  
**Self-Evaluation Check list for ATSEP – PEOPLE RESOURCING**

##		Process	Maturity level	Description of the maturity level	Tick
1)	A	I have understood the strategic requirements of my ANSP?			Y/N
	B	I have psychological contract with ANSP, that has built the mutual trust, increased commitment, and engagement.			Y/N
	C	I have improvised my unique talent and skills and adding values to my ANSP			Y/N
2)	If your choice for one or more questions is “N,” please state the specific reasons				
	A				
	B				
	C				



##	Table	Factor	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12.1	C12.2	C12.3	C12.4	C13.1	C13.2	C13.3	C13.4	C13.5	C13.6	C13.7	C13.8	C14.1	C14.2	C14.3	C14.4	C14.5	C15.1	C15.2	C15.3	C15.4	C15.5	C15.6	C15.7	C15.8	C15.9	C15.10	Top 10%	Top 20%	Top 30%	Top 40%	
167	B9	3	1																										1												1	1	1	1	
168	B9	4						1	1													1				1			1													1	1	1	1
169	B10	1	1				1																					1					1									0	1	1	1
170	B10	2																											1			1										1	1	1	1
171	B10	3				1		1	1													1								1			1	1		1	1	1	1			1	1	1	1
172	B10	4						1	1													1								1			1	1							1	1	1	1	1
173	B11	1		1						1	1		1														1															1	1	1	1
174	B11	2		1			1	1	1	1			1									1					1	1		1												1	1	1	1
175	B11	3		1						1	1		1														1															1	1	1	1
176	B11	4		1						1																	1		1													1	1	1	1
			C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12.1	C12.2	C12.3	C12.4	C13.1	C13.2	C13.3	C13.4	C13.5	C13.6	C13.7	C13.8	C14.1	C14.2	C14.3	C14.4	C14.5	C15.1	C15.2	C15.3	C15.4	C15.5	C15.6	C15.7	C15.8	C15.9	C15.10	125	161	172	175	
			38	25	12	16	24	43	45	23	33	12	47	22	10	16	13	12	12	14	10	21	5	10	6	51	15	58	28	32	36	26	19	13	7	18	10	11	2	6					
Top 10%			38	25	12	16	24	43	45	23	33	12	47	22	10	16	13	12	12	14	10	21	5	10	6	51	15	58	28	32	36	26	19	13	7	18	10	11	2	6	71%				
Top 20%			38	25	12	16	24	43	45	23	33	12	47	22	10	16	13	12	12	14	10	21	5	10	6	51	15	58	28	32	36	26	19	13	7	18	10	11	2	6		91%			
Top 30%			38	25	12	16	24	43	45	23	33	12	47	22	10	16	13	12	12	14	10	21	5	10	6	51	15	58	28	32	36	26	19	13	7	18	10	11	2	6			98%		
Top 40%			38	25	12	16	24	43	45	23	33	12	47	22	10	16	13	12	12	14	10	21	5	10	6	51	15	58	28	32	36	26	19	13	7	18	10	11	2	6				99%	