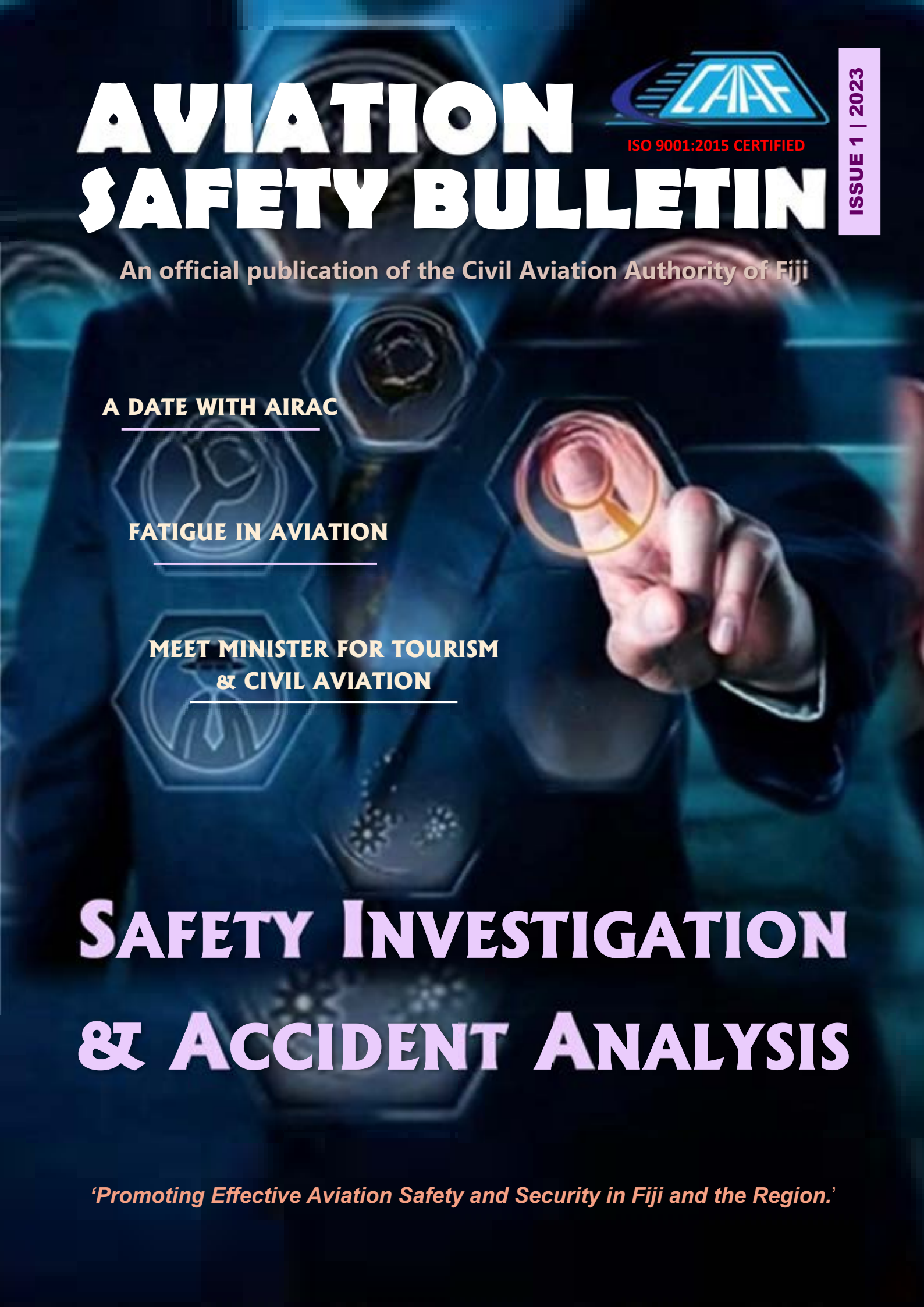
AVIATION SAFETY BULLETIN

ISO 9001:2015 CERTIFIED

ISSUE 1 | 2023

An official publication of the Civil Aviation Authority of Fiji



A DATE WITH AIRAC

FATIGUE IN AVIATION

MEET MINISTER FOR TOURISM & CIVIL AVIATION

SAFETY INVESTIGATION & ACCIDENT ANALYSIS

'Promoting Effective Aviation Safety and Security in Fiji and the Region.'

A DATE WITH AIRAC

FATIGUE IN AVIATION

INDEPENDENCE AND OBJECTIVITY IN AUDITING

LOSING WEIGHT DOES NOT PREVENT CARDIOVASCULAR DISEASE

Cover Pic: shutterstock.com

In this issue...

AVIATION SAFETY BULLETIN

PUBLISHED BY THE :
Aviation Safety Bulletin (ASB) Committee
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From the Acting Chief Executive

Ni Sa Bula Vinaka!

Welcome to the Civil Aviation Authority of Fiji's (CAAF) first edition of its Aviation Safety Bulletin (ASB) for 2023. The ASB is one of the many platforms that CAAF uses to discharge its responsibility under the Civil Aviation Authority of Fiji Act 1979, that is, to encourage a greater acceptance by the aviation industry of the industry's obligation to maintain high standards of aviation safety and security through comprehensive safety education and fostering of awareness within industry, and within the community generally, of the importance of aviation safety and security and the need for compliance with relevant legislation.

In March, I had the honor of attending the inaugural Asia Pacific Summit for Aviation Safety 2023 and being a panelist on the High-Level Panel on Aviation Safety, which kick started the three-day programme. The Summit, jointly organised by Flight Safety Foundation and the Civil Aviation Authority of Singapore, brought together senior leaders and aviation professionals from regulators, airlines, aircraft manufacturers, maintenance organisations, air navigation service providers and aerodrome operators from across the Asia Pacific region to discuss aviation safety challenges and initiatives.

What was a common theme across the 3-days was, that regardless of the size of a State's aviation system, all faced similar, if not the same, issues. The ability to come together and share our experiences on how to address these issues is important, this will enable us to move forward together in a more coherent, harmonised and safe manner.

Aviation Safety and Security is at the core of all that we do and we must work together, CAAF and industry, to ensure we have robust systems, a strong safety and security culture and the right people in place.

In this bulletin we introduce the Deputy Prime Minister and Minister of Tourism and Civil Aviation, the Honorable Viliame Gavoka. Our Honorable Minister is no stranger to the aviation and tourism industry, having previously served on the Board of CAAF and as former CEO of the Fiji Visitors Bureau. From the outset, he has been very clear on his expectations of his Ministry and the organisations that come under the Ministry, and that is, to ensure a more consultative and collaborative approach in all we do.

He brings with him much optimism and a mission to give Civil Aviation and Tourism, a sector that contributes to 40% of our GDP and supports thousands of jobs and livelihoods, the stature they deserve. As a result, the Ministry of Tourism and Civil Aviation is now a standalone Ministry.

A wide range of topics is covered in this bulletin, some of which have been requested by industry, namely, the *CAAF Appeals Process* and how changes made by the International Civil Aviation Organisation (ICAO) results in *Development of Standards* in Fiji.

The publication of accurate and timely information necessary for the safe and efficient conduct of flights cannot be overemphasized. Aeronautical Information must be regulated and controlled and this is done via the AIRAC. A good introduction to this is provided in the article *A Date with AIRAC*.

In March, we celebrated International Women's Day with the theme *Embrace Equity*. It is positive to note that women in the aviation industry are increasing year by year. It is believed that for every woman that forges ahead, at least two more women will follow behind. By truly embracing and ensuring equity, we encourage and support our women in the paths they are destined to pursue. ICAO has launched the *ICAO Women in Aviation Multimedia Engagement* and all women are encouraged to participate. More details on this can be found in this bulletin.

CAAF has been preparing for the upcoming ICAO's Universal Security Audit Programme Continuous Monitoring Approach Audit, on Fiji, to be conducted in June 2023. Fiji was last audited in this area in 2012. We are working diligently to increase our Effective Implementation rating in this area and we seek industry's support in the lead up to, and during the audit.

I urge industry to ensure compliance to regulations and standards, as well as the conditions that have been stipulated on the aviation documents (Licences, Certificates, Approvals, Permissions) issued to you by CAAF. If you are in doubt, ask. If you encounter a breach, report this. CAAF will support you. However, should you defy the rules, enforcement action, in accordance with the CAAF Act 1979 and CAAF's policies and procedures will be taken.

Let us work to build trust and mutual respect through better communication and collaboration.

Stay Safe ■

Vinaka,

Ms Theresa Levestam
Acting Chief Executive

Safety Investigation & Accident Analysis (Methodology)

The Civil Aviation Authority of Fiji's inspectorate staff underwent a customized Safety Investigation & Analysis Training session, conducted by Dedale Asia Pacific, in February 2023. This article provides an insight into knowledge gleaned from this training, showing the evolution of investigation data collection and analysis.

The 12th Edition of ICAO Annex 13 – Aircraft Accident & Investigation defines the *sole objective of the investigation of an accident or incident as the **'prevention'** of accidents or incidents. It is not the purpose of this activity to apportion blame or liability*.

Safety Investigation & Accident analysis is viewed as a **'reactive'** approach to respond to and provide appropriate support to safety investigation authorities, as well as applying the lessons learned to further improve safety and avoid future incidents/ accidents.

A global approach toward safety investigation & accident analysis is important and thus, the applicability of a common methodology and a systematic approach in the conduct of investigation and analysis is essential.

In 1975, the ***'SHELL'*** model was developed; **SOFTWARE, HARDWARE, ENVIRONMENT, LIVEWARE/LIVEWARE** (refer Figure 1). This model has evolved into what is now known as the **'SHEL-O'** model introducing the Systematic Occurrence Analysis Methodology (**SOAM)**.

Hawkins SHEL model of Human Factors. The letters stand for *Software* (procedures, protocol, training); *Hardware* (machines, medical instruments); *Environment* (operating theatre, wards, consultation room); and *Liveware* (human factors: doctor, nurse, other health care professional or patient). The uneven edges suggest that the components of the system are constantly changing and will never match perfectly. Human Factors are concerned with minimizing the mismatch between the components of the health care system.

What is the SHEL-O model?

Whilst there is no definitive or prescribed method for the gathering of investigation data, it is useful to employ a broad standard framework to help with the initial collection and sorting of facts. An adaptation of the SHEL Model provides the basis for a useful standardized descriptive framework; the **SOAM** (Systematic Occurrence Analysis Methodology).

The SHEL/O Model, as depicted, includes an additional element to cover **Organizational** aspects.

The SHEL/O Model

For this model to work effectively, raw data collection is very important. This can be done in a variety of ways and across the five SHEL/O elements (the four components of the original SHEL model, and the additional fifth element – Organisation).

- **Software** – documentation, including SOPs, checklists, manuals, charts, NOTAMS, etc.
- **Hardware** – equipment, displays, menus, controls, switches, workspace layout, vehicles, etc.
- **Environment** – workplace conditions, noise, lighting, temperature, or other factors that affect workers
- **Liveware** – the human elements (people)
- **Organisation** – organizational decisions/actions that impact the conditions under which people perform their work.

This approach reminds investigators of the potential source of information needed to be gathered, and of the questions needed to be asked about factors that may have contributed to the occurrence being investigated.

Below are examples of the types of data collected under each SHEL/O element.

SOFTWARE

PERSON-SYSTEM INTERFACE (SOFTWARE)

- What were the characteristics of the procedures (eg., SOPs, Emergency Procedures) used by people involved in the occurrence, for example regarding:
  - Availability
  - Suitability
  - Supervisory requirements of work instructions / SOPs
  - Quality / readability / clarity of documentation
  - Use / usability
- What other documents or processes were relevant to people involved in the occurrence (eg., diagrams, maps, charts, checklists, rules, regulations)?

HARDWARE

HUMAN-MACHINE INTERFACE (HARDWARE)

- What were the characteristics of the equipment provided to people in the workplace, for example:
  - Serviceability
  - Functionality
  - Usability
  - Familiarity
  - Availability
  - Design, eg., display quality: colours, illumination, clarity and complexity of data, signal strength, mode identification, potential for confusion, etc.
  - Reliability, eg., of transmission / alerting systems
  - Interaction with equipment and its effect on workload and skill maintenance, eg. Interaction with automated systems, PLBs, other vehicles, communications equipment, flight information displays, navaids etc.

ENVIRONMENT

PERSON-ENVIRONMENT INTERFACE

Which features of the environment may have impacted on the performance of the people involved in the occurrence?
For example:

- Temperature / humidity
- Quality of illumination
- Spaciousness
- Workspace design / layout / usability
- Noise or distraction from equipment / other people
- Task design and workload

LIVEWARE

PHYSICAL FACTORS

- Physical characteristics (eg., height, weight, age)
- Sensory limitations (eg., vision, hearing)

PHYSIOLOGICAL FACTORS

- Fatigue (eg., acute, chronic, task induced)
- Lifestyle factors, health, nutrition, stressful events

PSYCHOLOGICAL FACTORS

- Information processing (eg., perception, memory, situational awareness, decision making)
- Focus of attention (eg., distraction, monotony, task fixation, boredom, inattention)
- Recent experience (eg., on this task / equipment, at this location, with similar workload etc)
- Motivation / attitude / psychological wellbeing etc.

PSYCHOSOCIAL FACTORS

- Lifestyle issues (eg., change in personal or family circumstances, financial pressures, domestic stress)

PERSON-PERSON INTERFACE

- Oral communications:
  - Phraseology
  - Misinterpretation
  - Language / dialect
  - Read-back / hear-back
  - Message content / clarity / rate of speech
- Team interactions:
  - Supervision
  - Relationships
  - Morale
  - Team composition (eg., in/experience)
- Management:
  - Relations with staff
  - Resource allocation
  - Organisational change processes
  - Career path or progression
  - Industrial conflicts / labour relations

ORGANISATION

- Training:
  - Design
  - Delivery mode
  - Standardisation
  - Effectiveness
- Workforce Management:
  - Staff selection
  - Staffing levels
  - Work rosters
  - Tasking and workload
  - Fatigue Management
- Risk Management:
  - Hazard identification
  - Risk assessments
  - Control measures
  - Effectiveness
- Accountability:
  - Management commitment to safety
  - Responsibility for safety
- Communication:
  - Information dissemination
  - Standardised processes
  - Feedback systems
- Organisational Culture and Safety Culture:
  - Status of the SMS (Safety Management System)
  - Reporting processes
  - Organisational response to hazard reports / safety occurrence reports etc.
  - Safety climate
  - Just Culture issues

Safety Investigation & Accident Analysis (Methodology) cont.....

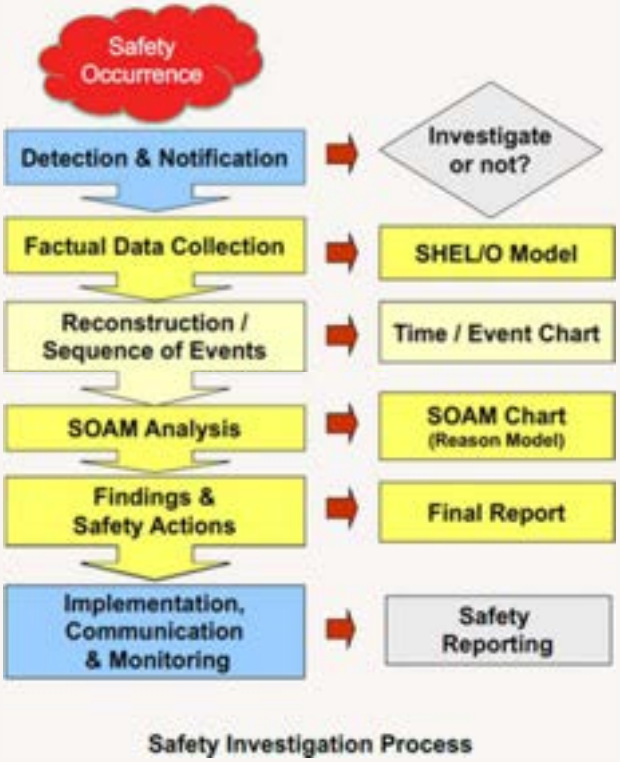


Figure 2 *Safety Investigation Process employing both SHEL/O Model and the SOAM methodology*

The Systemic Occurrence Analysis Methodology (SOAM)

Once raw data has been collected, the next step is sorting. Sorting of such accident or incident data is done using the **"SOAM"** model as demonstrated below.

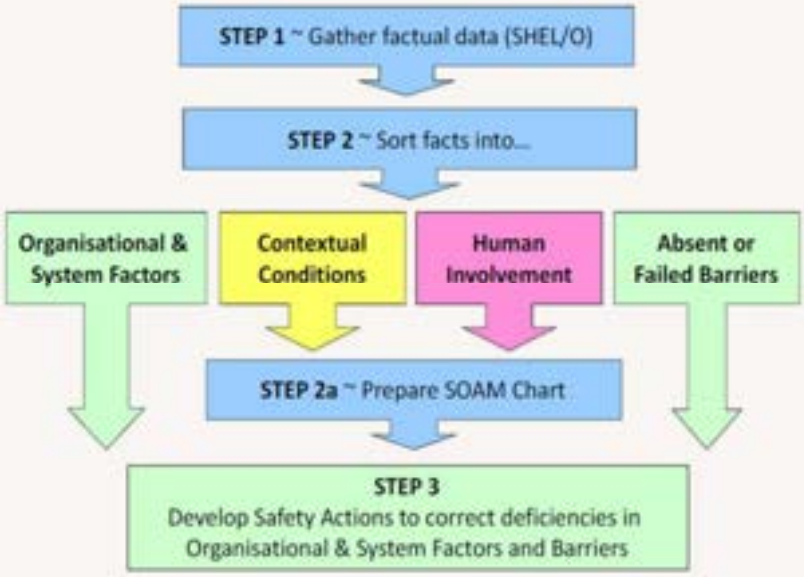


Figure 3 *SOAM Process Overview*

SOAM safety occurrence analysis is a tool based on principles of the well-known 'Reason Model' of organizational accidents. Its fundamental purpose is to support "*safety investigation, identify and understand associated contributing factors, and control re -occurrence of those contributing factors".*

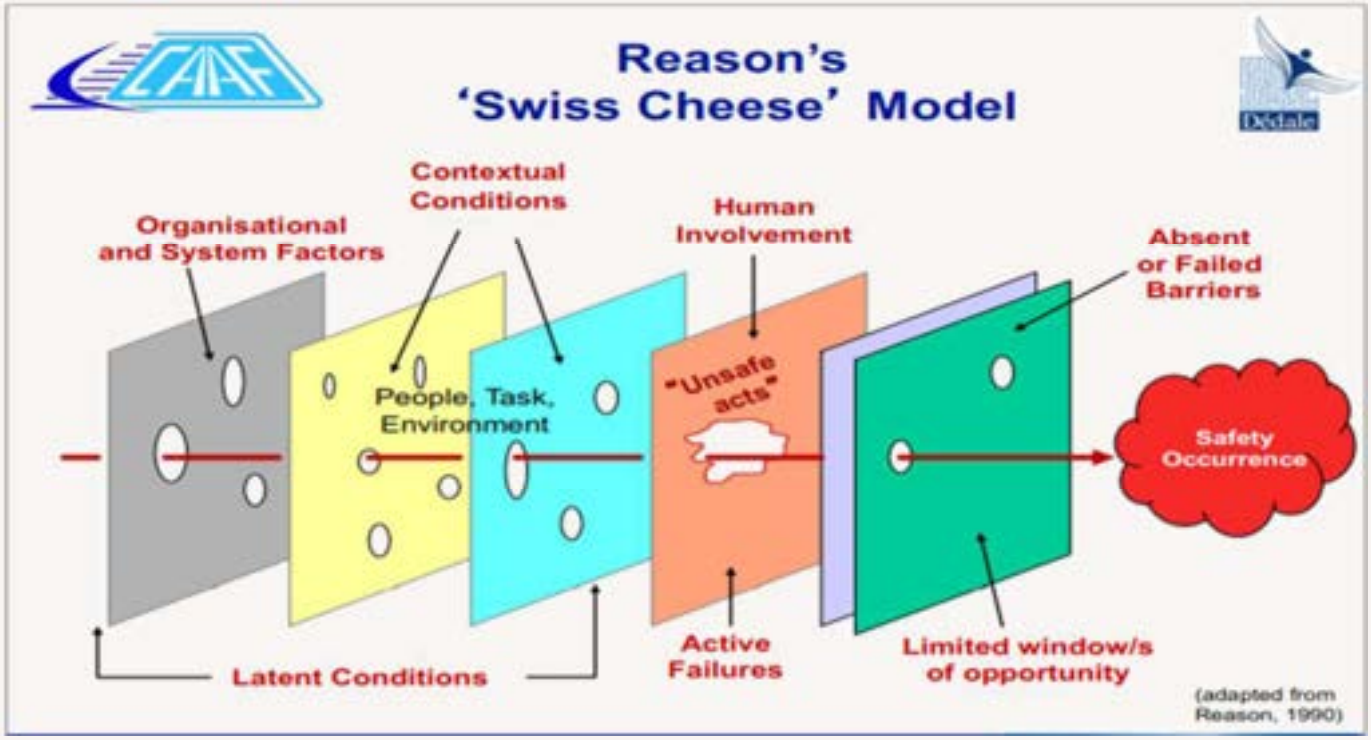


Figure 4 *SOAM adaptation of Reason Model*

SOAM ideologies: -

- It is a non-linear process for conducting a systemic analysis of the facts during a safety occurrence investigation
- It is a tool derived from four (4) elements of the James Reason Model i.e. **Human Involvement, Contextual Conditions, Organizational and System Factors, and Absent or Failed Barriers**.
- A tool that links the four (4) elements mentioned above that contribute to an incident or accident,
- It is a tool for arranging data using a structured framework and standardized terminology,
- It is a tool for analyzing and depicting the inter-relationships between contributing factors in a safety occurrence,
- A tool that allows the investigator to overcome historical limitations of safety investigations.

Figure 5 *Sorting of factual data using SOAM*

Once the sorting process is competed using the SOAM analysis, **corrective safety actions** addressing all identified Organizational and System Factors and all Absent or Failed Barriers can then be determined.

What next?

Now that data has been collated and sorted and a clear picture of the contributing factors is ascertained the next critical element of any safety investigation process is the development of effective safety actions. These must be relevant, clear and practical and be:

- directly linked to facts included in the SOAM analysis chart;
- focused on findings that are agreeable to corrective action;
- able to reduce the likelihood of recurrence of the event, and or reduce future risk;
- able to promote positive barriers and organizational aspects found to have helped to limit the severity or consequences of the occurrence; and
- able to address absent or failed barriers, and organizational and system factors■

As a guide, investigators should ensure that safety actions are: -

Source: The information contained in this article has been uplifted from the CAAF SOAM Quick Reference Guide.

Image: smarter aircraft cartoon investigation-Bing

A Date With AIRAC

Aeronautical Information Regulation and Control (AIRAC)

In a world where aeronautical information is constantly changing; airspace structures and routes are revised, navigation aids change, SIDs and STARs are amended, runway and taxiway information changes etc., it is essential, for both efficiency and safety, that pilots, dispatchers, air traffic controllers, air traffic flow managers, flight management systems and aeronautical charts all have the same information working from the same information base.

It is thus important that there is a standardised approach to effecting those changes.

This standardised approach to making operationally significant changes is known as 'AIRAC'.

ICAO Annex 15, section 6.2 on aeronautical information regulation and control, specifies that important changes should be maintained by a predetermined production schedule. A schedule of internationally agreed AIRAC effective dates for the years 2020 to 2029 have been published.

What is AIRAC

AIRAC is an acronym used for **aeronautical information regulation and control.** It is a 28-day cycle that manages the updating of aeronautical information globally. It was adopted in 1964 by International Civil Aviation Organisation (ICAO) and has been used ever since.

It is a system aimed at advance notification of changes to aeronautical information or circumstances that necessitate significant changes in operating practices based on common effective dates; the AIRAC schedule.

AIRAC as a Process

This process is simply a series of steps. AIRAC controls the process by aligning the steps with calendar dates.

You can think of AIRAC as a fixed Gantt chart with dates data must pass through. These dates, in chronological order, are cut-off, publication, reception and effective dates.
The days that information changes become operational (known as effective days) are internationally pre-determined and means that 'effective days' always fall on the same day of the week; Thursday.

So, what happens when there is need for urgent change to aerodromes that cannot wait 28 days? Such events where urgent or temporary changes are required (e.g. runway closures) the NOTAM ("notice to airmen") system is used.

Why do we use it?

For safety and efficiency because information is constantly changing. The AIRAC cycle makes sure that, globally, information is changed simultaneously. It also ensures that information changes are provided to aeronautical data users well in advance so are able to update their flight management systems accordingly.

Who is involved in the AIRAC process?

It's essential that everyone from pilots, to ANSPs (air navigation service providers), regulators, aerodrome operators, data houses and air traffic controllers around the globe have access to a consistent set of data, and that flight management systems are inputted with the same information.

Basic Rules for AIRAC Adherence

Submit your planned changes well before the cutoff date, especially when you have many changes that are complex, including the development of AIP charts and SUP graphics.

If your changes require the Aeronautical Information Service (AIS) Provider (Fiji Airports) to consult externally (for example airspace changes or hazards or other complex changes) the proposed changes should be sent to AIS well before the cut-off date.

ICAO recommends 28- or 56-days prior notification. This ensures that there is sufficient time to assess and activate the proposed changes and complete consultation if required before a change is published.

AIRACs key dates

There are three significant dates associated with the AIRAC system, namely:

a) the publication date - the date at which the AIS Provider sends out the information;

b) the latest reception date - the latest date that new, amended or deleted information must reach the recipients; and

c) the effective date - the date on which the changes take effect.

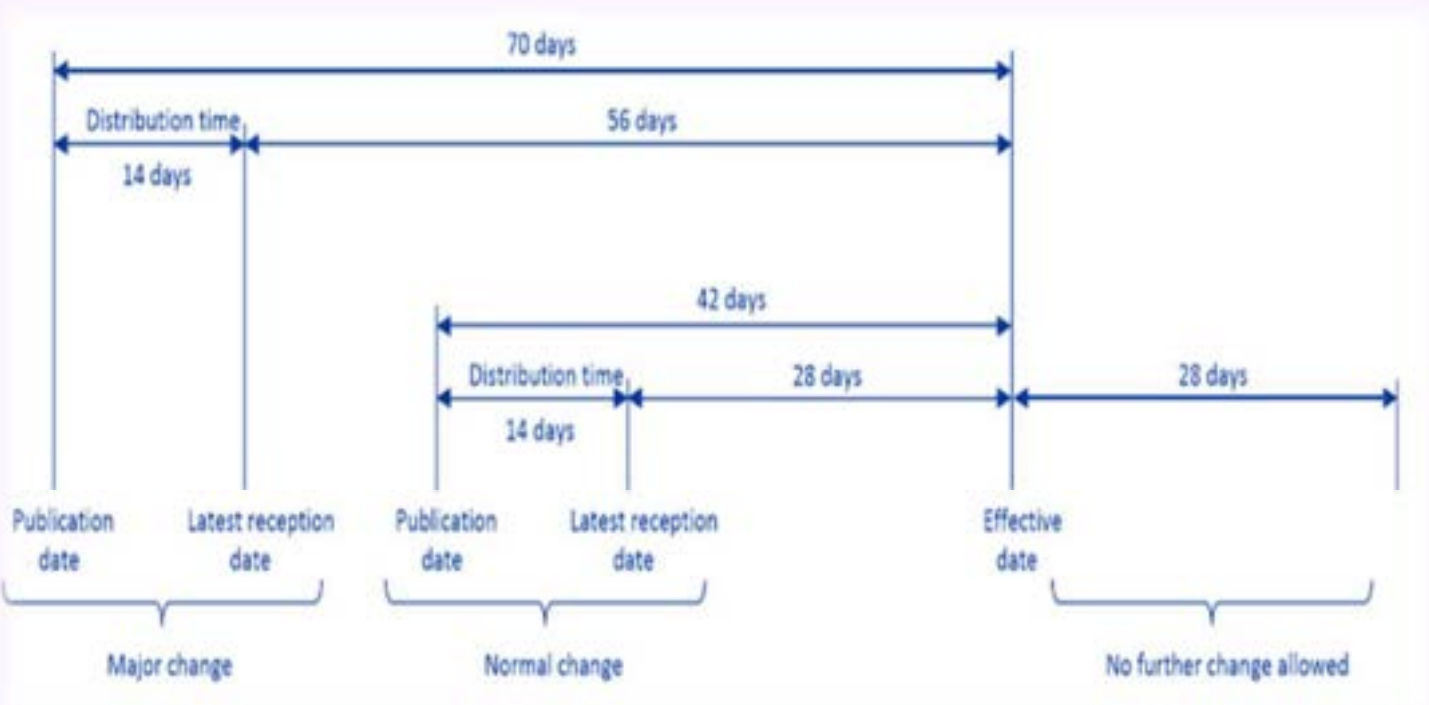
AIRAC DATES FOR FIJI AIP 2023

CYCLE	CUT OFF DATE	PUBLICATION DATE	LATEST RECEIPT DATE	EFFECTIVE DATE
23/4	09 FEB 23	09 MAR 23	23 MAR 23	20 APR 23
23/8	01 JUN 23	30 JUN 23	13 JUL 23	10 AUG 23
23/12	21 SEP 23	19 OCT 23	01 NOV 23	30 NOV 23

Important Note

It is important for everyone to abide by the information cut-off date to ensure that enough time is given to AIS for the verification and formatting of information and data to be incorporated in the amendment.

When in doubt ***"Think 56 days"*** lead time when planning to submit for amendment to publication■



Fatigue In Aviation

Image: MATS Aviation

Fatigue is an expected and ubiquitous aspect of life. For the average individual, fatigue presents a minor inconvenience, resolved with a nap or by stopping whatever activity that brought it on. Typically, there are no significant consequences. However, if that person is involved in safety-related activities such as operating a motor vehicle, piloting an aircraft, performing surgery, or running a nuclear reactor, the consequences of fatigue can be disastrous.

Definition

Defining fatigue in humans is extremely difficult due to the large variability of causes. Causes of fatigue can range from boredom to circadian rhythm disruption to heavy physical exertion. In lay terms, fatigue can simply be defined as weariness. However, from an operational standpoint a more accurate definition might be: "Fatigue is a condition characterized by increased discomfort with lessened capacity for work, reduced efficiency of accomplishment, loss of power or capacity to respond to stimulation, and is usually accompanied by a feeling of weariness and tiredness.

"TWO KEY CONCEPTS CAN BE DERIVED FROM THIS SECOND DEFINITION"

1. Fatigue can develop from a variety of sources. The important factor is not what causes the fatigue but rather the negative impact fatigue has on a person's ability to perform tasks. A long day of mental stimulation such as studying for an examination or processing data for a report can be as fatiguing as manual labor. They may feel different—a sore body instead of a headache and bleary eyes—but the end effect is the same, an inability to function normally.

2. Fatigue leads to a decrease in your ability to carry out tasks. Several studies have demonstrated significant impairment in a person's ability to carry out tasks that require manual dexterity, concentration, and higher-order intellectual processing. Fatigue may happen acutely, which is to say in a relatively short time (hours) after some significant physical or mental activity. Or, it may occur gradually over several days or weeks. Typically, this situation occurs with someone who does not get sufficient sleep over a prolonged period of time (as with sleep apnea, jet lag, or shift work) or someone who is involved in ongoing physical or mental activity with insufficient rest.

Stressors

General aviation pilots are typically not exposed to the same occupational stresses as commercial pilots (i.e., long duty days, circadian disruptions from night flying or time zone changes, or scheduling changes). Nevertheless, they will still develop fatigue from a variety of other causes. Given the single-pilot operation and relatively higher workload, they would be just as much at risk (possibly even more) to be involved in an accident than a commercial crew. Any fatigued person will exhibit the same problems: sleepiness, difficulty concentrating, apathy, feeling of isolation, annoyance, increased reaction time to stimulus, slowing of higher-level mental functioning, decreased vigilance, memory problems, task fixation, and increased errors while performing tasks. None of these are good things to have happen to a pilot, much less if there is no one else in the aircraft to help out. In a variety of studies, fatigued individuals consistently underreported how tired they really were, as measured by physiologic parameters. A tired individual truly does not realize the extent of actual impairment. No degree of experience, motivation, medication, coffee, or will power can overcome fatigue.

Image: Austria Cockpit Association

Antidote To Fatigue

Obtaining adequate sleep is the best way to prevent or resolve fatigue. Sleep provides the body with a period of rest and recuperation. Insufficient sleep will result in significant physical and psychological problems. On average, a healthy adult does best with eight hours of uninterrupted sleep, but significant personal variations occur. For example, increasing sleep difficulties occur as we age, with significant shortening of nighttime sleep. A variety of medical conditions can influence the quality and duration of sleep. To name a few: sleep apnea, restless leg syndrome, certain medications, depression, stress, insomnia, and chronic pain. Some of the more common social or behavioral issues are: late-night activities, excessive alcohol or caffeine use, travel, interpersonal strife, uncomfortable or unfamiliar surroundings, and shift work.

Prevention

No one is immune from fatigue. Yet, in our society, establishing widespread preventive measures to combat fatigue is often a very difficult goal to achieve. Individuals, as well as organizations, often ignore the problem until an accident occurs. Even then, implementing lasting change is not guaranteed. Lifestyle changes are not easy for individuals, particularly if that person isn't in complete control of the condition. For example, commercial pilots must contend with shift work and circadian rhythm disruption. Often, they also choose to commute long distances to work, so that by the time a work cycle starts they have already traveled for several hours. While a general aviation pilot may not have to deal with this, a busy lifestyle or other issues may lead to fatigue. Therefore, general aviation pilots must make every effort to modify personal lifestyle factors that cause fatigue■

LIFESTYLE RECOMMENDATIONS

DO

- ✓ Be mindful of the side effects of certain medications, even over-the-counter medications – drowsiness or impaired alertness is a concern.
- ✓ Consult a physician to diagnose and treat any medical conditions causing sleep problems.
- ✓ Create a comfortable sleep environment at home. Adjust heating and cooling as needed. Get a comfortable mattress.
- ✓ When traveling, select hotels that provide a comfortable environment.
- ✓ Get into the habit of sleeping eight hours per night. When needed, and if possible, nap during the day, but limit the nap to less than 30 minutes. Longer naps produce sleep inertia, which is counterproductive.
- ✓ Try to turn in at the same time each day. This establishes a routine and helps you fall asleep quicker.
- ✓ If you can't fall asleep within 30 minutes of going to bed, get up and try an activity that helps induce sleep (watch non-violent TV, read, listen to relaxing music, etc.
- ✓ Get plenty of rest and minimize stress before a flight. If problems preclude a good night's sleep, rethink the flight and postpone it accordingly.

Don't

- ✗ Consume alcohol or caffeine 3-4 hours before going to bed.
- ✗ Eat a heavy meal just before bedtime.
- ✗ Take work to bed.
- ✗ Exercise 2-3 hours before bedtime. While working out promotes a healthy lifestyle, it shouldn't be done too close to bedtime.
- ✗ Use sleeping pills (prescription or otherwise.

Meet the Minister for Tourism & Civil Aviation

Honourable Viliame Rogoibulu Gavoka is the current Deputy Prime Minister and Minister for Tourism and Civil Aviation.

A hotelier by profession, Honourable Gavoka has over 30 years of experience in the tourism and travel industry. He has held several executive level positions, including as the Director of External Relations, Shangri-La's Fijian Resort and Spa, Chief Executive Officer, Fiji Visitors Bureau (now Tourism Fiji) and General Manager, Amunuca Island Resort and Spa.

During the term of his career in the private sector, he has held several Chairmanship and Board positions on statutory organisations, including Fijian Holdings Limited, Fiji TV and Media Niugini Ltd, South Sea Cruises/Blue Lagoon Cruises, Fiji Rugby Union, Civil Aviation Authority of Fiji and Air Terminal Services.

Honourable Gavoka is the current Party Leader of the Social Democratic Liberal Party of Fiji and has been a member of Parliament since 2014■

Honourable Viliame Rogoibulu Gavoka

View this email in your browser

The ICAO Women in Aviation Multimedia Engagement Contest has been launched!

Following the successful experience of the 2016 photo contest on Gender Equality and Empowerment of Women in Aviation, ICAO has launched a new global contest, this time with a broader scope. Contestants are invited to submit social media style multimedia items—such as photos, memes, clips, and personal narratives—that relate their experiences and perspectives on gender issues and progress toward quality in aviation.

Prizes include attending the Global Aviation Gender Summit 2023, convened by ICAO and hosted by the Government of Spain and, on its behalf, by the Ministry of Transport, Mobility and Urban Agenda from 5 to 7 July 2023 in Madrid, Spain.

This contest is open to everyone. All interested participants are invited to submit their graphic or video files by Monday, 15 May 2023, by email to GenderEvent@icao.int. For contest details, please visit the website.

You are more than welcome to share this information with those who might be interested and eligible for this global Multimedia Engagement Contest.

We Look forward to receiving your inspiring multimedia items!

Yes, I am interested!

International Civil Aviation Organization
999 Robert-Bourassa Boulevard, H3C 5H7, Montréal, Quebec, Canada

ROI Return on investment for Aviation SMS Implementations

Return on investment (ROI) of a safety management system (SMS) in the aviation industry.

Safety is of paramount importance in the aviation industry, as even a small mistake can have catastrophic consequences. To ensure the highest levels of safety, many organizations have implemented safety management systems (SMS). An SMS is a structured approach to managing safety, which includes processes for identifying and analyzing risks, implementing controls to mitigate those risks, and continuously monitoring and improving safety performance.

While implementing an SMS can be costly, it can also result in significant returns on investment (ROI) for an organization. By proactively identifying and addressing potential hazards, an SMS can help prevent incidents and accidents, which can lead to significant cost savings. For example, the Federal Aviation Administration (FAA) estimates that for every dollar invested in SMS, an organization can realize a return of between $4 and $9.

In addition to cost savings, an SMS can also improve efficiency and productivity by streamlining processes and identifying opportunities for improvement. For example, an SMS may identify that a certain safety procedure is unnecessarily time-consuming, leading to the development of a more efficient process. This can result in time and cost savings for the organization.

While the ROI of an SMS can be significant, it is important to consider the potential challenges and limitations of using ROI as a measure of its effectiveness. One challenge is that it can be difficult to quantify the financial benefits of an SMS, as they may not always be immediately apparent. For example, the cost savings from preventing an accident may not be realized until many years in the future. Additionally, it can be difficult to attribute cost savings directly to the SMS, as they may be the result of multiple factors.

Despite these challenges, the evidence suggests that an SMS can result in a positive ROI for an organization. By proactively managing safety, an SMS can help prevent incidents and accidents, improve efficiency, and reduce costs. As such, it is an important investment for any organization in the aviation industry.

In conclusion, the ROI of an SMS in the aviation industry can be significant, with the potential for cost savings and improved efficiency. While there may be challenges in quantifying the financial benefits of an SMS, the evidence suggests that it can be a worthwhile investment for any organization■

Independence and Objectivity in Auditing

When selecting auditors for any audits, it is essential to have someone who is experienced and has a good understanding of the subject. While this is true for almost all cases, there are other must-haves for an auditor. From the number of the qualities an auditor needs to have, objectivity and independence are ones which is held to a high value. There is clear difference between being independent and being objective. Each is clearly defined by (Quality Gurus, n.d.) below.

Independence

Audit independence *refers to the ability of an audit team to perform an independent assessment without interference from management. It is achieved by having the right people on the audit team and by ensuring that they are free from any influence from management.*

Audit independence *means that an auditor has no stake in the business being audited.*

Audit independence *ensures that there is no conflict of interest; it also helps ensure that the auditor can be trusted because he/she will have nothing to gain or lose from the results of the audit.*

Objectivity

Audit objectivity *refers to the impartiality of the auditor's judgment. This is achieved by having the appropriate skills and experience to make objective judgments about the situation being assessed.*

Audit objectivity *refers to the fact that an auditor's professional judgment is not influenced by personal interest or bias.*

Objectivity *means that an auditor does not take sides in a dispute. Auditors are expected to remain impartial, and the audit is done based on facts.*

Some of the benefits of independence and objectivity includes, to mention a few;

- Not having preconceived idea/opinion of the outcome of the audit.
- Results are evidence-based.
- Findings and recommendations are well received and follow-up actions are carried out without delay.

Independence and/or objectivity may be impaired in a number of ways and would have significant impact on the outcome of the audit. According to (Lousiana's Community and Technical Colleges, 2020), Independence and/or objectivity can be impaired in a number of ways and on either organisational or individual levels. At the organisational level, senior management may attempt to limit the scope of a review, limit auditor access to records or not cooperate with the auditor in attempting to understand transactions or processes. An individual auditor's independence and/or objectivity may be impaired by an undisclosed conflict of interest with the client, by reviewing an activity for which they were previously responsible or by being unduly influenced by a personal friendship.

Whenever auditor independence or objectivity is impaired, in fact or in appearance, it must be disclosed to appropriate parties. If the impairment is not severe, with client agreement, the audit project may be able to continue to completion. If, however, the impairment is deemed to be significant, to the extent that successful completion of the project may be compromised, once disclosed to the appropriate parties, it may be necessary for internal audit to withdraw from the project.

Auditor independence and objectivity is about more than just complying with the Standards. It's about stakeholders being able to rely on the auditor's work and recommendations. It's about clients believing that the auditors have their best interests in mind. It's about adding value■

Source: www.qualitygurus.com and www.lctcs.edu/internal-audit/blog

Development of Standards

Have you wondered how Standards and Recommended Practices are developed by ICAO and implemented by ICAO member States? This article explains the role of ICAO in developing standards, the process used in Fiji including the role of the CAAF and the industry, for establishing and implementing the newly adopted ICAO SARPs.

ICAO ASSEMBLY

Every three years, ICAO's 193 Member States and a large number of international organisations are invited to ICAO's General Assembly where they inter alia establish ICAO policies, vote the budget for the triennium and elect the ICAO Council for a 3-year term. The ICAO General Assembly is also where technical, economic, legal and technical cooperation work programmes are reviewed in detail and the outcome is turned over to ICAO and Member States to guide their continuing work.

ICAO SECRETARIAT

When new priorities are identified, the ICAO Secretariat convenes panels, task forces, conferences and seminars to explore the best possible results and advice so new international standards and recommended practices can be established. ICAO conducts educational outreach and auditing, develop coalitions and training and capacity-building activities worldwide based on the needs and priorities governments identify and formalise.

ICAO COUNCIL

The ICAO Council which is the governing body of the ICAO has elected representatives of 36 States. The ICAO Council adopts the Standards and Recommended Practices (SARPS) recommended by the Air Navigation Commission (ANC).

AIR NAVIGATION COMMISSION (ANC)

The ANC is the technical body responsible for the development of SARPS contained in the Annexes with the exception of Annex 9 (Facilitation) and 17 (Security).

There are 19 members nominated by States appointed by the ICAO Council, who are technical experts responsible for coordination of work in the air navigation field. There are members nominated by international organisations and approved by the ANC that include the Operations Panel, Airworthiness Panel and Personnel Licensing Panel.

ICAO's SARPS are developed under the direction of the ANC through the formal process of **ICAO Panels**. Once approved by the ANC, standards are sent to the ICAO Council for consultation and coordination with the Member States on proposal for amendments before final adoption.

ICAO MEMBER STATES

ICAO Member States are notified through ICAO State Letters for Proposals for Amendments to ICAO SARPS. When the ICAO Council has adopted an amendment to an ICAO SARP, the applicable date is usually 4 months from the effective date. ICAO Member States are consulted and required to submit a response within 3 months when the envisaged applicability of the proposed amendment is within 2 years, or submit a response within 6 months when the envisaged applicability of the proposed amendment is within 4 years.

ROLE OF CAAF AND THE INDUSTRY

When Fiji receives an ICAO State Letter for Proposals for Amendments to ICAO SARPs, the CAAF conducts an assessment on the impact of the proposed amendment to CAAF legislation, regulations, policies and procedures.

The industry will be notified by the Manager Legal & Enforcement for consultation on the proposed amendment where a response is required within a minimum of 2 weeks, before a response is sent to ICAO. Usually the industry will be notified directly via email and/or through the CAAF website.

When Fiji receives an ICAO State Letter for Adoption for Amendments to ICAO SARPs, the CAAF conducts an assessment on the impact to CAAF's legislation, regulation, policies, procedures and training. The industry is notified and an awareness conducted on the change of the legislation, regulations, standards, and the impact to the operator's compliance statement, if required.

The CAAF will amend and publish the rules before the applicable due date, and conduct surveillance obligations on the implementation by the operator, as required■

CAA Fiji's APPEALS PROCESS

Did You Know ?

Any person who is aggrieved by the CAAF's decision on the refusal, withdrawal, revocation, variation, or suspension of an aviation document may appeal to the Chief Executive (**CE**) for the review of that decision.

Section 12F of the Civil Aviation Authority of Fiji Act 1979 empowers the CE to consider appeals.

How long it takes ?

The appeals process usually takes 28 to 35 consecutive days to complete depending on the complexity of the matter.

What is the Process

1. ***Aggrieved person (Applicant) writes an appeal letter to the CE.***
2. ***The CE acknowledges receipt of the appeal letter with a brief overview of the appeals process and timelines.***
3. ***Representations to the CE are made by the Applicant and the CAAF staff who made the decision.***
4. ***The CE reviews the representations made and makes a decision which is communicated to the Applicant in writing.***

For further information on the CAAF appeals process, please visit the CAAF website on https://caaf.org.fj/legislation-forms-guidance/appeals ■

FLYING TRAINING PERMIT (FTP)

What is a Flying Training Permit?

A Flying Training Permit (FTP) is a permit issued by CAAF in accordance with regulation 66 of the Air Navigation Regulations 1981 (ANR) and S3/ Chapter 3 of the Standard Documents – Personnel Licensing.

When is a Flying Training Permit issued?

An FTP is issued to a person/individual (17 years and above) who intends to undertake trainings on any aeroplane, balloon or helicopter registered in Fiji.

How ?

Complete the PL100 Form which can be retrieved from the PEL Office or the CAAF website and submit completed form to the PEL Office.

Requirements under the PL100 Form include:

1. Application for FTP issue (1st time applicants):

- 2 passport size colored photographs;
- Proof of identification – either a copy of passport biodata page or birth certificate together with a Photo ID;
- Police Clearance;
- Application fee of $54.50 plus $60 for FTP Book;
- Medical conducted by a CAAF Authorised Medical Authority Doctor;
- Sign off by the CFI (Chief Flight Instructor).

2. For renewal of applications (renewal applicants):

- Application fee of $54.50;
- Medical conducted by a CAAF Authorised Medical Authority Doctor;
- Sign off by the CFI (Chief Flight Instructor)■

HAVE YOU CHECKED YOUR LICENSE/ PERMIT/ CERTIFICATE AND VALIDATION EXPIRY DATES?

IS YOUR LICENSE VALIDITY CURRENT?

IS YOUR MEDICAL CERTIFICATE VALID?

IS YOUR INSTRUMENT RATING VALID?

IS YOUR FLIGHT INSTRUCTOR RATING VALID?

NOTE: You may violate the Air Navigation Regulations by conducting any flights with any of the aforementioned documents expired, which could result in a fine and /or a conviction■

CAA Fiji is keen to hear from you regarding our levels of service. If you believe you have constructive ideas on how we can improve our services, or would like to report instances where we have failed to meet your expectations, please send your feedback to CAAF, preferably using the QA 108 form that can be accessed from our website. This can be sent to CAAF via email or dropping it in the feedback box in the foyer of CAAF HQ, or

emailing to : *info@caaf.org.fj*

FCAIR

FIJI CONFIDENTIAL AVIATION INCIDENT REPORTING

FORMS AVAILABLE ON WEBSITE

www.caaf.org.fj

***OR* FRONT DESK,**

CAAF HQ.

Losing Weight Does Not Prevent Cardiovascular Disease

On the 27th – 29th January this year (2023) the Inaugural Pacific Aviation Medical Conference was held in Nadi which was co-organised by CASA Australia, Dr Ram Raju and his staff. It was the first of its kind which was hugely successful in terms of the high level of overseas speakers that participated and the excellent local turnout in attendances by aviation doctors and other medical professionals.

The benefits of such Conferences is in the wealth of "new" information and "new" ideas that are imparted and one highlight for me, and one I'm sure many pilots would be interested in was presented by renowned New Zealand Cardiologist, Professor David Colquhoun who presented on day 1 on "Cardiovascular Risk Assessment and Treatment".

Expected Treatment Benefit

CHOLESTEROL
- For each 1mMol/L decrease of LDL-C 20-25% less CVD & 10% deaths

BLOOD PRESSURE
- For each 10mmHg decrease Systolic BP 10-20% less CVD

DIET
- 1 point increase Med Diet 10-20% less CVD

OMEGA-3
- 2000mg EPA/DHA per day 25% less CVD and improves heart function

EXERCISE
- Walking (moderate) 30 minutes daily 10-20% less CVD

DIABETES
- Treatment with GPL-1 agonist or SGLT-2 inhibitor 20% less CVD and HF

WEIGHT LOSS
- Unfortunately, treatment does not prevent CVD

DEPRESSION
- Resolution associated with 50% less deaths over 5-7 years

On one of his slides, Prof Colquhoun presented the benefits to Cardiovascular Disease (CVD) if certain health indicators are addressed, and it was a surprise to me that **Losing Weight in the Obese patient does NOT prevent CVD**. And I followed this up with a question to Professor Colquhoun during his lecturer whether grounding our Pilots with Obesity (BMI > 30) is a waste of everyone's time when it comes to preventing CVD. He answered yes.

I would like to explore this topic a little further.

Terminologies

* CARDIOVASCULAR Disease comprise **Heart Attacks** (Ischaemic Heart Disease) and **Stroke** (Cerebrovascular Disease).

* Chronic Metabolic Diseases or Non-Communicable Diseases (NCD) are a group of diseases with a common underlying pathological process due to faulty intracellular metabolism.
  Eg: Type 2 Diabetes, Hypertension, Dyslipidaemia, Cardiovascular Disease, Cancer, Dementia, Fatty Liver Disease and Polycystic Ovarian Disease.

The visually obese are divided into 2 metabolic types;

1) Metabolically Healthy Obese (~20% of obese population).
2) Metabolically Sick Obese (~80% of obese population).

The metabolically **sick obese** have lots of visceral fats around the abdominal cavity and organs, and more importantly, inside the liver called Fatty Liver. These are the fats that are hidden which could be visualised by CT Scan or Ultrasound scan.

The metabolically **healthy obese** person have lots of subcutaneous fat sitting just under the skin eg. love handles, chubbiness. However, they have very little or no visceral and liver fats and these people have no risk of developing Non-Communicable Diseases like diabetes and cardiovascular disease.

However, 60% of the Normal Weight population have exactly the same diseases as the metabolically sick obese. Normal weight people also can develop Type 2 Diabetes, Hypertension, Dyslipidemia, Cardiovascular Disease, Cancer, Dementia, Fatty Liver Disease and Polycystic Ovarian Disease. Like the metabolically sick obese, these thin people have lots of visceral and liver fat - Thin Outside Fat Inside (TOFI).

Should We Ignore Obesity?

Certainly not. Obesity is still a risk factor of chronic metabolic disease especially Type 2 Diabetes Mellitus, but it is not a CAUSE of Chronic Metabolic Diseases or Non Communicable Diseases (NCD).

The reason why treating Obesity does not prevent CVD is that Obesity is a symptom of the problem but not the Underlying Cause of the problem. Treating a symptom of disease is the typical band-aid solution that is unfortunately rampant in how mainstream medicine tackles chronic metabolic disease. It is like giving aspirin to a brain cancer patient with headaches. It cures the headache, but does nothing to the cancer which will eventually kill the patient. Furthermore, 20% of obese people are metabolically healthy and losing weight does nothing at all to their cardiovascular risk.

So what is the Underlying Cause of Chronic Metabolic Disease??

Let us begin with a look back in history as to how Diabetes as a disease have evolved over time. Diabetes is the sentinel disease of Chronic Metabolic Disease.

Before 1980 Diabetes was divided into **Juvenile Diabetes** affecting mainly children, and **Adult Onset** Diabetes affecting mainly adults. This terminology was forced to be changed because children began to develop adult onset diabetes mellitus. Now Diabetes is divided into Type 1 Insulin Dependent Diabetes and Type 2 Non-Insulin Dependent Diabetes. What is causing children to develop adult type 2 diabetes?

In year 2000 there were ~151 million people with Type 2 Diabetes worldwide. It was predicted that in 2010, a decade later there would be ~221 million cases (46% increase). This was not what happened. In 2010 there were ~285 million cases and 2014, ~422 million cases, a tripling of what was anticipated.

By 2019 ~463 million, 2021, ~537 million and it is predicted by 2030 ~568 million people worldwide will have Type 2 Diabetes. Despite progress and invention of new drugs to treat diabetes and obesity we are still witnessing an escalation of cases.

Something is not working. Are we making things worse?

Let us now look at LIVER health, especially the evolution of Fatty Liver Disease. Again prior to 1980 when a patient presented with fatty liver disease, it was primarily caused by Alcohol Overconsumption - Alcoholic Fatty Liver Disease.

Now 25% of Children have a similar fatty liver disease, and they do not consume alcohol. Also 45 % of adults now have Non-Alcoholic Fatty Liver Disease. Fatty liver disease is now the leading cause of Liver Transplant in the USA having overtaken Hepatitis C. If you have fatty liver disease you are 3.5 times more likely to develop Diabetes.

There are 8 sub-cellular pathologies that underlie Chronic Metabolic Disease.

1) Glycation
2) Oxidative Stress
3) Mitochondrial Dysfunction
4) Insulin Resistance
5) Membrane Instability
6) Inflammation
7) Epigenetics/Methylation
8) Autophagy

For the purposes of this article, I would not go deep into each subcellular pathologies, but just to highlight that these are diseases that are INVISIBLE to your doctor. They are processes or pathologies going on inside your cells.

And even if they see it they wouldn't be able to do anything about it because they are not DRUGGABLE – there are no drugs/medicines for them. But they are all amendable to FOOD or DIET.

Losing Weight Does Not Prevent Cardiovascular Disease cont.....

THE SCOURGE OF ULTRAPROCESSED FOODS

In the USA ultra-processed foods account for 62% of all foods consumed and 67% of all foods consumed by children. The percentage of processed foods consumption correlates with the rates of Obesity and correlates with Mortality. Processed food is high in sugar (fructose) and low in fibre.

In simple terms Processed foods is found in supermarket shelves, in a packet with a bar code. As opposed to Real Foods or Whole Foods that are found in Municipal Markets. Foods that grow in the soil, or hang from trees and those living organisms in Seas and Rivers. If its whole foods, it doesn't matter if its High Fat or High Carbs, it is still good for your health. The fructose and the sugar in processed foods cause the Metabolic Damage and the low fibre cause the Inflammatory damage in cells.

I have always advised by patients with Chronic Metabolic Diseases to shut the door to the Supermarket and open the door to the Municipal Market with its adjacent Fish/ Seafood Market.

WHAT FOODS DRIVES INTRACELLULAR PATHOLOGIES

1) Glycation – processed carbohydrates, fructose, lack of fibre
2) Oxidative Stress – glucose, fructose
3) Mitochondrial Dysfunction- fructose, omega 6, trans-fats, lack of micronutrients
4) Insulin Resistance – fructose, Branched chain amino acids- leucine, isoleucine, valine which are present in corn fed beef, chicken and fish.
5) Membrane Instability – lack of omega 3
6) Inflammation – processed carbohydrates, gluten, omega 6, fructose, lack of fibre
7) Epigenetic/Methylation – lack of folic acid and vitamin B 12
8) Autophagy – frequent feeding, lack of fibre

CAN I EXERCISE MORE IF MY DIET IS BAD ??

You cannot outrun a bad diet. And 4 out of the 8 subcellular processes mentioned above is NOT amendable to Exercise i.e.: Glycation, Oxidative stress, Membrane Instability and Epigenetics/Methylation. In fact, Oxidative Stress gets worse with exercise.

WHAT OF THE OBESE AVIATOR??

Obesity is a BMI > 30. It has to be determined if you fall in the category of the Metabolically Sick Obese by doing a couple of examinations and tests.

1) Blood Pressure </= 120/80.
2) Normal Lipid Profile – a low Triglyceride and LDL with a high HDL.
3) HbA1c < 6.9%.
4) Ultrasound scan to rule out Fatty Liver Disease.
5) Normal Exercise Stress Test and Echocardiogram.
6) Coronary Calcium Score if Cardiovascular Risk Score Calculation is high.

If the above is satisfactory then you can be assured that you are Obese but metabolically healthy and thus your risks of developing Ischaemic Heart Disease (Heart Attack) and Stroke is negligible■

Author: Dr Isireli Biumaitotoya

Image: Phoenix Heart

USP Global Online Learning with Aviation Courses

INTRODUCTION

International civil aviation is a global sector that is governed by a set of international standards and regulatory framework to encourage uniformity in civil aviation regulations, policies and plans at regional, national and operational levels. This is achieved through effective regulation and oversight of safety and security of all aviation activities both at the national and operator/service providers levels are a critical element of a national civil aviation system.

Ongoing and continuous learning and training is a key enabler and underpins an effective implementation of national civil aviation oversight system. The goal of the USP course is to broaden and enhance the knowledge and appreciation of participants, particularly aviation professionals, so they could contribute and influence a healthy safety culture in their profession, States and collectively in the Pacific region.

In this light, the USP Global in conjunction with leading aviation expert **Professor Ron Bartsch AM** has developed a series of accredited aviation courses specifically designed for aviation professionals and those seeking to work in the aviation industry.

COURSE OVERVIEW

The Regulation of Aviation module (Module 1) is free. It provides an overview of how civil aviation is regulated by describing international conventions, in particular the Chicago Convention 1944 and international bodies, such as the International Civil Aviation Organisation (ICAO), which have established international recognised standards. The module will also look at the various regulatory authorities in terms of their areas of responsibility.

AVIATION PROGRAM

Module 1 - The Regulation of Aviation
Module 2 - Commercial Aviation Industry
Module 3 - Aviation Safety and Aviation Security
Module 4 - International Aviation Law

FEES

Module 1 – Free – Register free online with link in *attached* Flyer. Module 2, 3 and 4 - FJD 375 each module > Program Bundle - FJD 900.

TIMETABLE

CODE	Title	Start	End	Duration (Weeks)	Type
AVL02	Module 2: Commercial Aviation Industry	03-Jul-23	13-Aug-23	6	Paid
AVL03	Module 3: Aviation Safety and Security	04-Sep-23	15-Oct-23	6	Paid
AVL04	Module 4: International Aviation Law	01-Nov-23	12-Dec-23	6	Paid

COURSE INSTRUCTOR

Professor Ron Bartsch (BA, BSc, LLB, LLM, MPhil, Dip Ed, ATPL) is considered one of the world leading experts on aviation law and aviation safety. As Managing Director of AvLaw Pty Ltd and Chairman of AvLaw International he works with some 50 specialist aviation consultants and lawyers located across the Asia Pacific region. He has worked with Pacific Aviation Safety Office and other aviation projects in the Pacific for the past 20 years.

Ron has wide ranging senior management and operational experience in the aviation industry, occupying positions as Head of Safety and Regulatory Compliance at Qantas Airways Limited and Manager of Airline Operations with the Australian Civil Aviation Safety Authority (CASA). As a former Chief Pilot and Chief Flying Instructor, Ron has over 7,000 hours flying experience and command aircraft type ratings ranging from Cessna's though to the Boeing 717-200.

Ron has written many books on aviation law including *Aviation Law in Australia (5th Ed.)* and *International Aviation Law: A Practical Guide* (2nd ed) and contributing author for *Halsbury's Laws of Australia* aviation title. Ron was also one of only two aviation specialist members of the Federal Administrative Appeals Tribunal from 2013 to 2017■

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Civil Aviation Authority of Fiji

"Follow the rules.

Take no short cuts."

More info @ www.caaf.org.fj