

# 18<sup>TH</sup> SOUTH WEST PACIFIC HIDROGRAPHIC COMMISSION MEETING

18<sup>TH</sup> FEBRUARY 2020

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DAY 2, CAPACITY BUILDING

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OCEAN AND MARITIME PROGRAMME

# Background: Pacific Safety of Navigation project



**Target Pacific Island Countries and Territories (PICs):** Cook Islands, Kiribati, Federated States of Micronesia, Marshall Islands, Nauru, Niue, Palau, Samoa, Solomon Islands, Tonga, Tokelau, Tuvalu and Vanuatu

**Goal:** improving safety of navigation in the Pacific through enhanced capacity and systems

**Result 2:** PICTs capacity to deliver effective AtoN services is improved through regional coordination, qualification and standards.

long-term capacity  
building vision to ensure  
**SUSTAINABILITY and  
EFFECTIVENESS**

# Various capacity building tools



Regional  
workshops

National  
workshops

Trainings

Secondments

# AtoN CAPACITY BUILDING STRATEGY IN THE PACIFIC AND ACHIEVEMENTS



2017-2018: capacity needs assessment in 10 PICs

2018: - 14 participants from 13 PICs attended regional workshop on Safety of Navigation  
- 14 participants from 13 PICs trained on SIRA Risk assessment

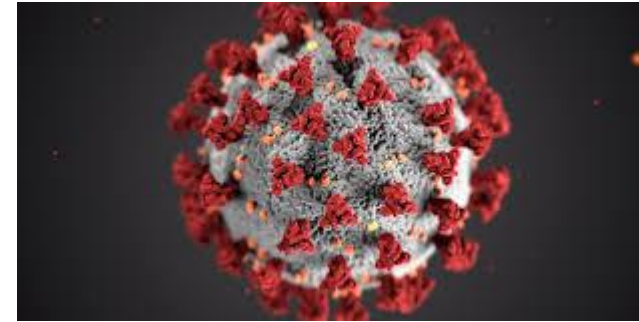
2018-2019: 12 national workshops on AtoN Risk assessment in 9 PICs

2019: - SPC accredited by Maritime Safety Authority of Fiji (MSAF) to deliver IALA Level I Manager Course  
- 9 participants from 9 PICs trained and certified AtoN Managers  
South Pacific AtoN Managers network established


2020: - national workshop in Kiribati on AtoN Maintenance based on IALA Level 2 guidelines  
- Solomon Islands and Kiribati participated to a south-south collaboration secondment at SPC premises in Fiji

# UN-EXPECTED ACHIEVEMENTS


MARCH 2020: COVID-19 = TRAVELS STOPPED



Closer remote engagement  
with AtoN Managers




Cook Islands, Vanuatu, Kiribati, Samoa, Tonga, Palau and Solomon Islands drafted their **AtoN Level of Service Statements**.



Kiribati, Vanuatu, Tonga, Marshall Islands, Palau and Samoa completed their **AtoN registers**.



**Kiribati and Solomon Islands lead on AtoN maintenance with support from SPC**



**Solomon Islands will conduct Noro SIRA Risk assessment autonomously, with support from SPC**

# WAY FORWARD

“ *NO TRAVEL* = can we deliver **AtoN maintenance workshop** *remotely*?!”



## Disadvantages:

- Screen “fatigue”
- Long subject to deliver online
- Need face to face interaction

“condense” IALA Level 2 Guidelines and develop **guidelines/posters**  
**on AtoN maintenance**

## Advantages:

- Easy to locate all the most important IALA Level 2 AtoN guideline's technicalities
- Easy to follow by anyone – even “non- AtoN specialist”
- Easy to carry + waterproof!
- Perfect “starting point” for maintenance of types of AtoN found in the Pacific Island Countries and Territories

# SPC Aids to Navigation (AtoN) Maintenance Guide

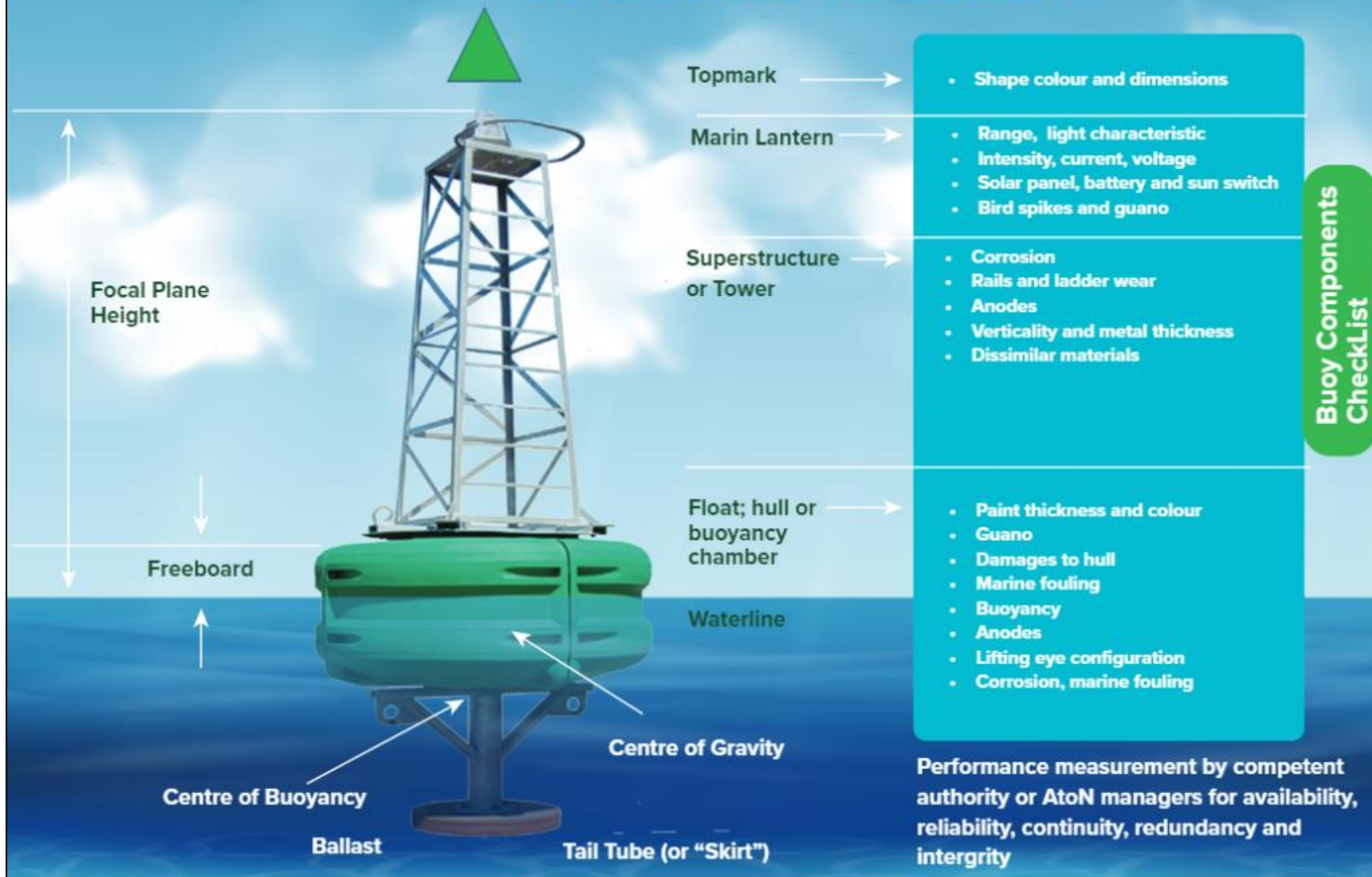




# AtoN Maintenance - buoy components and what to check?



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# AtoN Maintenance, daymarks

*It should not be forgotten that most traffic occurs during the day, which means that the daymarks should be readily identified by mariners at a distance without possibility of confusion*

## Detection

The observer is aware of an object. The navigator sees an object, but will usually not be able to deduce its shape or colour and will not know that it is an AtoN

## Recognition

The observer is aware that the object is an AtoN

## Identification

The observer is aware which AtoN the object is. At this distance, the navigator can perfectly discern the type of mark it is

For AtoN Daymarks the following constructions are in use:

Flat daymark  
Solid daymark  
Crossed plates  
Lattice construction



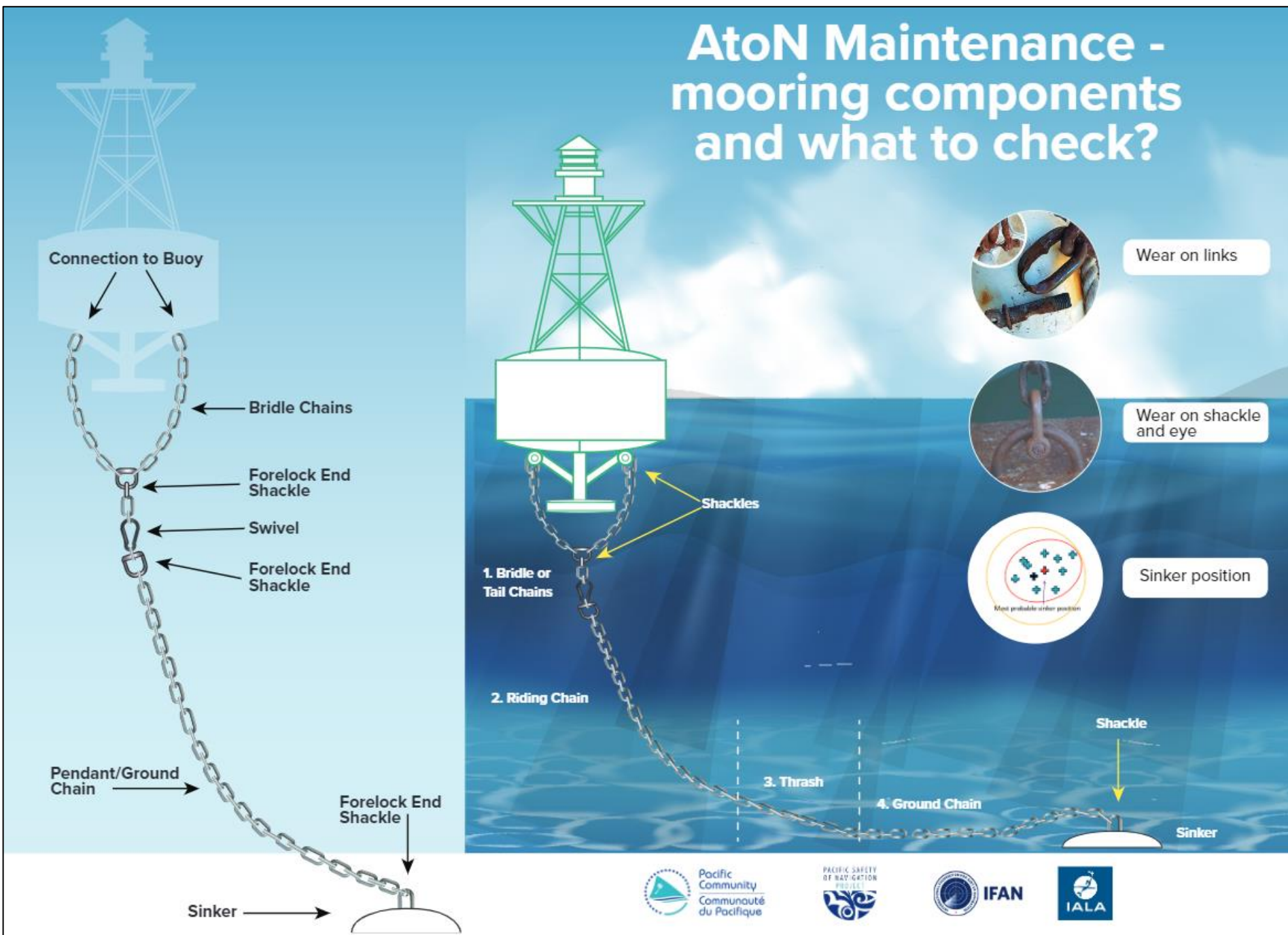
For fixed Aids there is more freedom in the design of daymarks. For Example:

- A fixed daymark may be much larger and higher providing a long daymark range;
- A specific colour scheme may be used to identify a particular fixed AtoN;
- It may be flat;
- It may be designed for a specific background;
- It may have a background panel to show more contrast;
- The design of the daymark should take into consideration environmental conditions such as wave action;
- The supporting structure of a daymark may become part of the daymark or be used to enhance the conspicuity

CARDINAL MARKS	
	Cardinal topmarks N / E / S / W
LATERAL	
	Lateral topmarks (Region A)
SPECIAL AND NEW DANGER MARKS	
SAFE WATER AND ISOLATED DANGER MARKS	



# AtoN Maintenance - mooring components and what to check?



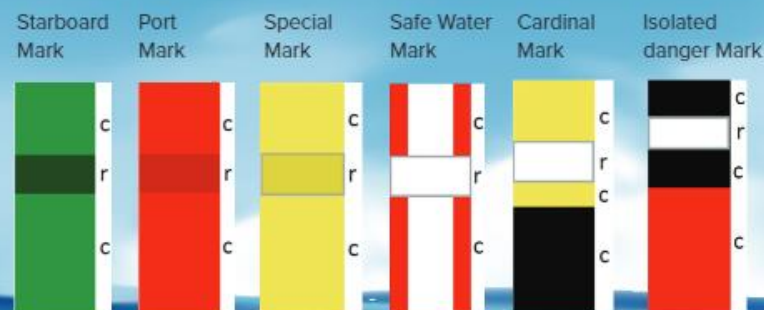


# AtoN Maintenance - paints, coatings and retroreflecting materials

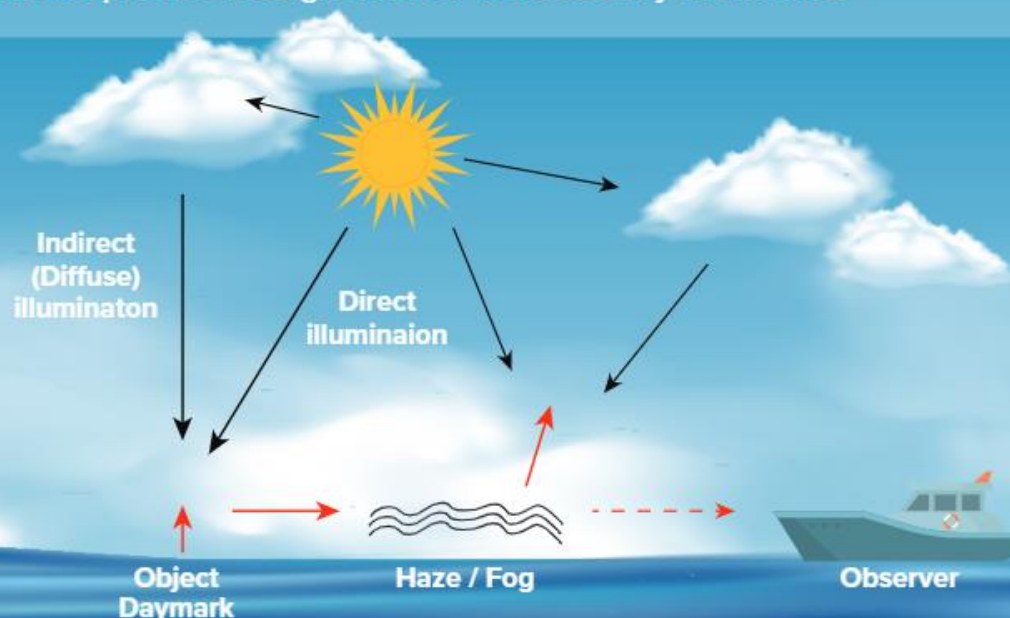
*Paint provides protection from corrosion and provide the signal colour to be seen by the mariner*



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**c: Colour of the Mark**  
**r: Retroreflecting Material**



AtoNs can be equipped with retroreflective material, so the mariner can detect the position and colour at night by use of a searchlight

In principle, green, red and yellow buoys should carry only one green, red and yellow band respectively

White bands for safe water, cardinal and isolated danger marks

- The IALA MBS uses 5 colours: Red, Yellow, White, Blue and Black
- Coloured surfaces are subject to salt deposits, marine growth, bird fouling, mechanical abrasion UV degradation, etc.
- A surface colour should always be checked, especially at a distance, for its appearance among the surrounding colours
- Deterioration of surface colours in use is a common occurrence, and care must be taken that signal colours always remain in compliance with their specifications
- Effective colour retention will depend on regular maintenance cleaning which will be simplified by utilising paint with a hard and high gloss surface
- A glossy surface produces a saturated colour, thus its recommended to use glossy colours for AtoNs



# AtoN Maintenance - lantern and lamp components and what to check ?

- Ensure solar modules are not covered and are in clear view of the sun with no shadows
- Visually inspect lantern lens and base for cracks, grazing, holes
- Inspect bird deterrent spike
- Battery check- inspection performed routinely to ensure the charger, battery and ancillary electronics are functioning correctly
- Use voltage meter to check the battery voltage in both on-load and off-load conditions and ensure all terminals are clear of foreign matter
- Inspect battery boxes for damaged flanges, covers, gaskets, vent valves, and securing hardware
- Check for degradation of sector colours, and replace or adjust to the correct charted position if necessary
- Solar panels – tilt angle, framework and mounting hardware, corrosion and tension, broken glass, water intrusion around the edges. Inspect wiring for cuts, abrasion and UV degradation. Where plugs and sockets are used, check for water ingress or corrosion. Test power output including the solar regulator.
- A review of spares holding

## Lanterns and Lamps checklist

- |   |
|---|
| • Light Intensity, range                                      |
| • Battery voltage, resistance, current and electrolyte levels |
| • Cracks or signs of water ingress                            |
| • Earthing and power output                                   |
| • Colour degradation  |
| • Sun switch glazing and lantern glazing                      |
| • Bird spikes, Guano and dirt                                 |
| • Obstruction around lights, solar modules etc                |
| • Level and focus   |
| • Flash character   |
| • Signal output   |
| • Solar Panels  |

Performance measurement by CA or AtoN managers for availability, reliability, continuity, redundancy and integrity



# Want the guidelines for your country?

Please contact

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