Document Revisions

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**IALA Guideline No. ####**

**On**

**Theft and Vandalism Deterrents**

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Revisions to the IALA Document are to be noted in the table prior to the issue of a revised document.

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# Scope

The scope of this document is to provide information on the problem of theft and vandalism of AtoN sites, which is an issue affecting many countries and regions.

# AIM

The aim of this guideline is;

1. Provide a definition and examples of theft and vandalism in the context of an AtoN site.
2. Provide details of the detrimental effects of theft and vandalism on an AtoN site.
3. To provide information on previous experiences faced by authorities or organizations that deal with theft and vandalism issues, including details of methods or control measures that have proven successful in deterring or decreasing theft and vandalism.

# Introduction

Theft in the context of this guideline could be defined as the act of stealing or the wrongful taking and carrying way of any element, component or piece of equipment from an AtoN site. Likewise, vandalism could be defined as an action involving deliberate destruction of or damage to an AtoN site.

Theft and vandalism is an issue that generally affects many countries around the world but is more prevalent in some regions. The type, extent and severity of theft and vandalism may vary greatly but generally results in a decrease in the reliability of an AtoN, in some cases to the point the AtoN is no longer operational or functional. As AtoN often mark hazards and assist with navigational safety, this raises serious implications for shipping safety and protection of the marine environment.

Theft is principally associated with the removal of AtoN equipment or power supplies (including solar panels and batteries), whereas vandalism would normally be associated with either deliberate or unprovoked damage of the AtoN equipment or an AtoN site.

The cost of repairing or reinstating stolen or damaged AtoN or AtoN sites is another major consideration for this issue, highlighting the need for effective theft and vandalism deterrents

A theft or vandalism deterrent can be defined as a device, object or method that prevents or minimizes the chances of theft or vandalism of an AtoN.

Due to its opportune nature, it is difficult to predict either theft or vandalism unless it is an issue experienced regularly on a particular site or in a particular area, in which case identification of the appropriate deterrent should be something an authority or organization should be able to identify through assessment and evaluation. Effectively done, theft and vandalism deterrents can be a valuable tool for cost saving and ensuring AtoN reliability.



# METHODS FOR DEALING WITH THEFT AND VANDALISM

There are many different methods of deterring theft and vandalism, from the incorporation of security into the initial structural and site design process, or the design of solutions that are engineered specifically to solve a site related security problem, through to the mobilization and engagement of communities and the use of public awareness programs.

The exact method of deterring theft and vandalism should be designed or chosen to suit a specific application and problem but where possible should attempt to address the root cause of the theft and vandalism and identify to resolve it from there up.

### **Control of Access**

Theft on an AtoN site is only possible if the intending party can access the site.

To be further developed.

### **Structural Design**

Theft and vandalism deterrents can be factored into the initial design of a new AtoN. Identification of appropriate measures that can be built into the design from very early stages will avoid the costs associated with structural or design alternations at a later stage, and in some cases may help effectively avoid the theft and deterrent issue right from the start.

This could involve many different approaches, depending again on the site, but could include;

* The incorporation of security fences or other methods of preventing unauthorized access to the site.
* Installing lanterns and power supplies as high and securely as possible and ensuring the structure is difficult to climb.
* Designing buoys so unauthorized access without the appropriate maintenance equipment is difficult.
* Designing power supply storage to be as inconspicuous as possible.
* To be further developed.



### **Remote Monitoring, Surveillance and Signage**

The continued availability and development of remote monitoring technology provides an option for monitoring remote sites. It provides an option for identifying situations where an AtoN stops operating, although in most situations it would not actually be possible to identify whether the cause of that outage is theft or vandalism or whether it is some other operational issue. It's main value in this aspect would be notification of the need to respond and rectify and where necessary investigate.

The use of video surveillance is another available method of deterring theft and vandalism although it is more suitable for areas where an adequate response is available when surveillance identifies a situation involving theft or vandalism. Effectiveness may be enhanced through incorporation of security and warning signage that advertises the presence of such systems, and possibly also the penalties associated with theft, vandalism or even unauthorized access.

Even basic warning signage provides a very basic level of deterring unauthorized access but if utilized as the sole method, relies on the inherent goodwill or a would be trespasser.

To be further developed.



### **Selection of Appropriate AtoN Equipment**

One of the primary targets of theft and vandalism are power supply components such batteries and solar panels which have a high resale or can be easily re-used in other applications.

The use of self contained lanterns, i.e lanterns that have in built batteries and solar panels may prove a far less enticing target than having stand alone batteries and panels that are conspicuous, modular and therefore can be easily removed.

These self contained lanterns generally offer a lower range and as such their application on any site should be adequately investigated to ensure they suit the requirements for that site.



Figure 1: Examples of Use of Self Contained Lanterns

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### **Theft deterrent devices**

For already established sites affected by theft and vandalism, where re-design or in

The use of physically engineering solutions for the prevention of theft may be required for sites where a required range may not allow for the use of self contained lanterns or for where remote monitoring or other methods of surveillance and notification of theft are not possible.





Figure 2: Examples of engineered methods of theft deterrents, including fabricated stainless steel security frames for batteries, solar panels and lanterns.

### **Community Engagement and Public Awareness**

The proximity and interaction of an AtoN or AtoN site between nearby communities, towns, cities or other developments to an AtoN are often one of the largest theft and vandalism drivers. There are many factors related to this social aspect including but not limited;

* Remoteness and location of site.
* Lack of surveillance or presence of functional law and order.
* The level of socio economic development or other economic developmental prerssures.
* Population pressures.

Further development