

POLICY BRIEF

PRIORITIES FOR STRENGTHENING REGIONAL COOPERATION IN MONITORING, CONTROL AND SURVEILLANCE FOR EFFECTIVE AND STRATEGIC COMBAT OF ILLEGAL, UNREPORTED AND UNREGULATED (IUU) FISHING IN AFRICA

Key Messages

Illegal, Unreported and Unregulated (IUU) fishing is a serious threat to the sustainability of the fisheries resources as well as livelihoods, and food and nutrition security of AU Member States (AU MS). Fighting against this phenomenon must be a priority by AU MS and integrated into their national regulatory and institutional frameworks

Monitoring, Control, and Surveillance (MCS) is a key component of fisheries management and its effective implementation can serve as both a deterrent and enforcement mechanism to combat IUU fishing

Assessment of IUU fishing phenomenon in the continent and the status of MCS systems in the regions including an assessment of the strengths and weaknesses of these systems, revealed seven priority thematic areas to invest to strengthen regional cooperation in MCS to combat IUU fishing:

- Regional training programs on Needs Assessment on the implementation of Port State.

Measures Agreement to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing (PSMA).

- Comprehensive review of national legislation and regulations in the regions.
- Improvement in data collection and sharing.
- Strengthen on-going Regional Observer Programs and develop others, as appropriate.
- Promote involvement of regional and multilateral organizations.
- Strengthen on-going regional MCS systems and establish others, as appropriate.
- Regional capacity building in a number of key aspects of MCS.

Background

In the framework of the European Union funded project “*Strengthening Institutional capacity to enhance governance of the fisheries sector in Africa*” also referred to as Fisheries Governance Project, work has been undertaken to advance regional approaches to Monitoring, Control and Surveillance (MCS) as a key part of the fight against Illegal, Unreported and Unregulated



(IUU) Fishing. Through a combination of studies by consultants, as well as, workshops with participants at regional level (North, Eastern, Southern, Central and West Africa), Fisheries Governance Project has generated considerable momentum as well as knowledge and understanding of the building blocks for regional approaches to MCS. Based on these outputs, this Policy Note summarizes the Priorities for strengthening regional cooperation in MCS for effective and strategic combat of IUU fishing in Africa.

Regional cooperation, as emphasized by the Policy Framework and Reform Strategy for fisheries and aquaculture in Africa (PFRS), is critical for the long-term sustainable utilization of the living marine resource and protection of Africa's marine environment. Illegal Unreported and Unregulated Fishing (IUU fishing) is a serious threat to this sustainability; hence fighting against this phenomenon must be a priority by AU member States (AU MS). Monitoring, Control, and Surveillance (MCS) is a key component of fisheries management, and its effective implementation can serve as both a deterrent and enforcement mechanism to combat IUU fishing.

Illegal, Unreported and Unregulated (IUU) Fishing

What is Illegal, Unreported and Unregulated (IUU) Fishing?

Illegal, unreported, and unregulated (IUU) fishing is a global problem that threatens ocean ecosystems and sustainable fisheries. IUU fishing activities violate both national and international fishing regulations. It threatens national economies and the natural resources that are critical to global food security, and it puts law-abiding fishers and producers at a disadvantage.

Illegal fishing is a problem in every ocean, but it disproportionately affects Africa due to countries' under-enforcement of the law, limited capacity in fisheries management, inadequate awareness of the costs of the exploitation and mis governance implicating both African countries and foreign fishing partners; all of which inhibit aggressive action. Some of the world's hot spots for IUU fishing are the Western Indian Ocean and West Africa.

Illegal, unreported and unregulated fishing is currently the single most important issue in African fisheries because of its significant socio-economic, political and environmental long-term impacts.

Definition of Terms

Illegal fishing refers to fishing activities conducted in contravention of applicable laws and regulations, including those laws and rules adopted at the regional and international level.

Unreported fishing refers to fishing activities that are not reported or are misreported to relevant authorities in contravention of national laws and regulations or reporting procedures of a relevant regional fisheries management organization (RFMO)

Unregulated fishing occurs in areas or for fish stocks for which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law. Fishing activities are also unregulated when occurring in an RFMO-managed area and conducted by vessels without nationality, or by those flying a flag of a State or fishing entity that is not party to the RFMO in a manner that is inconsistent with the conservation measures of that RFMO

Source: FAO. 2001. International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. Rome. 24 pp

What are some examples of IUU fishing?

IUU fishing in Africa covers a wide range of offences that include: fishing without a license or quota for certain species, fishing in closed or protected areas, or during closed seasons, catching beyond authorized limits; failing to report catches or making false reports (to both the coastal State and RFMO), using prohibited fishing gear, under-reporting of the size of vessel, fishing with forged and fraudulent licenses or vessel

registrations and fishing threatened, endangered and protected (TEP) species.

There are additional trade related offenses such as unloading catches in non-designated ports or conducting unauthorized transshipments (e.g., transfers of fish) to cargo vessels as well as fishing without an observer on board (if so mandated by regulations) and failing to operate a vessel monitoring system.

The problem of fishing without licensee has often reached dramatic levels in countries experiencing armed conflicts, where fishing authorities are barely functioning. Fishing vessels operating in the area have paid substantial sums to various warlords for protection from piracy. These funds are thought to have contributed to the escalating piracy as well as the worsening of the armed conflicts. The practice of unlicensed fishing has also led to collusion with small-scale fishers in some countries. While unlicensed vessels are an issue, the greatest concern are licensed vessels involved in under-reporting catches and the use of banned fishing methods.

The Significance of IUU fishing in Africa

Illegal fishers are cheating coastal communities that depend on fish for sustenance and income. They undermine law abiding commercial fishers, skew scientific assessments of the fisheries and destroy the environment. Illegal fishers are also organized criminals. IUU fishing poses a direct threat to food security and socioeconomic stability in many countries.

IUU fishing reduces the contribution of EEZ or high seas fisheries to the national economy in terms of employment from local and locally based foreign fleets and leads to loss of potential resource rent. IUU fishing in the EEZ reduces local landings and means non-payment of access dues which will in turn impact on actual and potential export earnings. This also has implications for surveillance services in countries where the activities are supported wholly or partly by export revenues.

The environmental impacts of IUU fishing include: stock status impacts and impacts on threatened, endangered and protected (TEP) species, habitat degradation, and impact on ecosystem services (e.g. loss of inshore prawn fishing areas, damage to mangrove areas, spawning and breeding areas) and biodiversity. This will lead to a reduction in income for coastal fishing communities. The decline in fish availability on local markets may also reduce protein availability and national food security. This may increase the risk of malnutrition in some communities, which are heavily dependent on fish as a source of animal protein.

IUU fishing also results in conflicts between artisanal and commercial fishers when industrial fishing vessels (legal and illegal) encroach on areas reserved for smaller vessels or designated as small-scale fishing grounds with both licensed and unlicensed fishing vessels using prohibited fishing gears, equipment, and methods. When this IUU fishing depletes fish stocks and forces regulators to reduce catch limits, legitimate fishers who follow the rules designed to preserve the health of the marine environment bear the burden.

Misreporting of vessel size particularly bottom trawlers which fish in areas reserved for smaller vessels has the most devastating impact on coastal communities. This not only destroys spawning and breeding areas, but undermines the availability of fish, and often damages local vessels and fishing gear.

Many crew members on IUU fishing vessels are from African countries and they often work in unsafe conditions in gross violation of workers' rights onboard vessels. Further, illegal vessel operators have forged and altered licenses and other required documentation as a cover to fish illegally. According to the United Nations Office on Drugs and Crime (UNODC), illegal fishing also is linked to transnational organized crime, including human trafficking, often for forced labor on fishing vessels and drugs and arms smuggling.

In 2013, an African country introduced the biometric identification registration in small-scale fisheries to deter young men from joining piracy. UNODC notes that illegal fishers often commit other crimes including

evading taxes, bribing fisheries enforcement personnel, and hiding ill-gotten profits. The United Nations Commission on Crime Prevention and Criminal Justice in 2013 urged states to strengthen law enforcement and increase international cooperation to combat organized crime committed at sea.

The African Union 2050 Africa's Integrated Maritime Strategy (2050 AIM Strategy), encourages all Member States are to report any IUU fishing activity to the AU for supplementary stringent dissuasive actions through all available channels deemed appropriate.

Where are the gaps and weaknesses in fisheries governance?

Illegal fishers are exploiting gaps and weaknesses in African fisheries management systems and governance; such as poor communication between coastal states and regional fishery bodies; under-resourced enforcement patrols, loose controls of many ports, inadequate information sharing systems; etc. to perpetrate their fraudulent activities. These weaknesses are expanded below:

Lack of/weak Monitoring, control and surveillance systems: A major challenge in addressing IUU fishing is the limited capacity to manage vast expanse of waters. In Africa, the lack of sufficient enforcement capabilities also hinders the monitoring of fishing operations. The situation in the continent is aggravated by ineffective observer programs for monitoring fishing activities of licensed vessels, poor logistics for offshore fisheries surveillance, weak systems for vessel registration and licensing, and lack of effective regional collaboration for the MCS systems. These gaps have considerably weakened the capacity of the African Continent to fully realize the socio-economic benefits associated with rational exploitation of its marine fisheries resources.

Lack of sufficient resources: Most countries have insufficient resources to spend on at sea monitoring, control and surveillance, leaving most of their Exclusive Economic Zone (EEZ), which extend 200 nautical miles from the shoreline, open to these unscrupulous operators. In the high seas, that is, in waters beyond national jurisdiction, for the most part, the area

of competence of regional fisheries management organization (RFMOs), these irresponsible operators still cheat.

Regional fisheries management organizations, have set quotas for high seas species such as tuna. Since, only countries that are members of the RFMOs are bound by the rules, vessels registered, or flagged, in non-member countries are free to ignore the rules and fish. Further, if owners of vessels registered to a member country do not want to abide by an RFMO's quota, they can simply reflag their vessel to a non-member state and fish at will.

Low flag State performance: Some irresponsible flag States do not respect their commitments. Vessel owners are not required to reveal information about themselves or their vessels' history before reflagging their vessels. So, owners can always change the name and registered owner of a boat to avoid enforcement. In such situations there is very little coastal countries and fisheries regulators can do even if they have plenty of evidence against a suspected illegal fisher.

Insufficient port State control: Ports known for lax enforcement or limited inspections are prime spots for IUU fishers to move their ill-gotten catch to market. The Port State Measures Agreement to Prevent, Deter and Eliminate illegal, unreported and unregulated (IUU) fishing (PSMA) which came into force in 2016, require parties to exert greater port controls on foreign flagged vessels and as a result keep IUU catch out of the world's market, removing some of the incentives for dishonest fishing operators to continue their illegal activities. Among other things, States enforcing the Agreement would refuse entry or access to port services, including landing and shipment of fish, to foreign flagged vessels known to have engaged in IUU fishing.

Absence of transparency: Transparency is a key tool for combating IUU fishing. However, currently there is no comprehensive overview of which vessels and/or operators have been engaged in IUU fishing. And even where such list exists, it is not generally shared. Further, fishing agreements are frequently opaque, keeping basic

information from public view, such as who is allowed to fish, how much they pay and what they catch. Some distant water fleets, which have authority to fish under foreign access arrangement, are known to be involved in IUU fishing.

Inadequate penalty regime: A more rigorous penalty regime is critical to effectively combat IUU fishing. Applying sanctions of sufficient severity to act as a deterrence to IUU activities is a clearly recognized need in the International Plan of Action (IPOA) on IUU Fishing and a requirement in international law insofar as fisheries on straddling and highly migratory fish stocks are concerned. However, many African countries are not effectively implementing the relevant international fisheries instruments, such as the United Nations Convention on the Law of the Sea (UNCLOS), the UN Fish Stocks Agreement, FAO Compliance Agreement, Port State Measures Agreement (PSMA), or the Guidelines on port State performance.

These gaps have considerably weakened the capacity of the African Continent to fully realize the socio-economic benefits associated with rational exploitation of its marine fisheries resources.

What are the economic losses caused by IUU fishing?

The inherent nature of illegal, unreported, and unregulated fishing, the scope of the offenses, the range of actors involved and the difficulties of detection, makes it difficult to accurately quantify the full global/regional economic impacts resulting from these activities. But there is little disagreement that it is in the billions, or even tens of billions, of dollars each year.

Various studies over the years have assessed regional levels of IUU fishing and estimated global losses, but such estimates are based on data that are now many years old and even notoriously unreliable. Non-the-less, in the EEZ of African States, IUU fishing results in an annual loss estimated between USD 2 to USD 5 billion of potential wealth. About 25 to 30 per cent of the global fish catch is considered unreported. The United Nation's Food and Agricultural Organization (FAO) is currently developing regional IUU estimate

methodologies that can be regularly updated.

Monitoring, Control and Surveillance (MCS)

An effective MCS is considered the best hope of preventing, deterring and eliminating IUU fishing, and is recognized as one of the key principles of fisheries management both in areas under national jurisdiction and the high seas.

Only recently has MCS been recognized as an integral part of fisheries management and not merely a police function to punish law breakers. MCS is both necessary to protect fisheries from IUU fishing, but also to provide necessary biological, economic and social information for management and as a means to provide a backbone to management implementation. Without MCS, there can be no certainty that pre-determined management objectives will be realized.

The three components of MCS have been described as: **Monitoring** - the continuous requirement for the measurement of fishing effort characteristics and resource yields;

Control - the regulatory conditions under which the exploitation of the resource may be conducted; and

Surveillance - the degree and types of observations required to maintain compliance with the regulatory controls imposed on fishing activities

The three components of MCS suggest that it is not limited to policing or fisheries enforcement but involves a range of measures that takes into account a legal framework, data collection and analysis, and surveillance and patrol systems that would help ensure compliance in fisheries.

Parallel approaches to effective MCS: There are two parallel approaches to effective MCS – one is the preventive approach of compliance measures, and the other is the deterrent or enforcement approach.

The first approach includes enhancement of community/ fisher awareness and understanding of management

and MCS through seminars, public awareness and information, education, and communication campaign; participatory management development to promote ownership of the management regime and input into the regulatory/control aspect of management, in preparation for acceptance by the fishers of their joint “stewardship” role for the management of their fisheries in partnership with government.

The second, the deterrent/enforcement approach, seeks to ensure compliance by fishers who resist the regulatory regime. This approach includes inspection, investigation, prevention and court proceedings to enforce the law. It is a necessary complimentary approach to the voluntary approach, which would fail if stakeholders see non-compliant fishers successfully evading the law and receiving economic returns from their illegal activity, at the expense of the fishers who comply.

Spatial Components of MCS: MCS has three spatial components: land, sea, and air. The land component of an MCS system serves as the base of operations and the coordinating center for all MCS activities from which governments can regulate the deployment of resources to best address changing situations. It is the sector responsible for port inspections and the monitoring of transshipments and trade in fish products to ensure compliance with fisheries legislation.

The sea component includes MCS activities undertaken in marine areas under the jurisdiction of a State and may also cover high seas areas. The technology involved in the sea component of MCS includes radar, sonar, and vessel platforms.

The air component of MCS is usually the first level of response to a coastal State or region of concern and covers the air and space equipment such as aircrafts and satellites used in MCS activities. The flexibility, speed and deterrence of air surveillance make it a very useful and sometimes cost-effective tool for fisheries management.

MCS tools for management: Key tools for MCS as the executive arm of fisheries management include:

- an appropriate participatory management plan developed with stakeholder input;
- enforceable legislation and control mechanisms (licences etc.);
- data collection systems – dockside monitoring, observers, sea and port inspections, etc.;
- supporting communications system;
- patrol vessels capable of extended operating to remain at sea with the fishing fleets;
- aircraft available for rapid deployment to efficiently search large areas;
- use, where appropriate, of new technology (VMS, satellite, video, infra-red tracking, etc.);
- linked, land-based monitoring;
- support of the industry and fishers;
- bilateral, sub regional and regional cooperation with other MCS components; and
- professional staff.

Basic infrastructure for MCS: The basic infrastructure required should consist of at least the following:

- A national headquarters for the coordination of fisheries operations with a network of linked field offices.
- A central operations room where current status of fishing operations can be shown.
- A communications system to all fisheries centers and mobile platforms in the field for both safety and control of operations.
- A computer data system for licensing and vessel registration, data collection and analysis

Legal Basis for MCS: The implementation of MCS to combat IUU fishing has its legal basis in international binding and non-binding instruments such as the United Nations Convention on the Law of the Sea, UN Fish Stocks Agreement, FAO Compliance Agreement, the FAO Port State Measures Agreement, the FAO Code of Conduct for Responsible Fisheries and the four International Plans of Action, including the International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU). These instruments provide for the adoption of a number of MCS measures from the commencement of the fishing activity to the final destination of caught fish.

These measures include vessel registration, licensing or authorization to fish, record of fishing vessels, vessel monitoring system, observer programs, boarding and inspection regimes, port State measures, and catch certification

It is necessary to legitimize MCS at national level and through, Memorandum of Understanding or other administrative processes among participating States at regional level.

MCS Toolkit: The conventional means of MCS include the use of patrol vessels, aerial patrols and observers on board fishing vessels. In the last two decades a series of new technologies including Vessel detection systems, automatic identification system, satellite surveillance with Synthetic Aperture Radar (SAR), Cellular phones etc. have been added to MCS toolkit

Brief Descriptions of some technologies and tools

Automatic Identification System (AIS), The International Maritime Organization (IMO) originally required transmission of AIS messages to prevent collisions. An AIS message, including location, identification, flag and cargo, is receivable by sensors on land or in the air, and today there is also frequent coverage using space-based AIS. There has been an issue with veracity of AIS data because of spoofing of AIS signals, which could be accidental due to maintenance issues but could also indicate deceptive operations.

Vessel Detection Systems (VDS) - A Vessel Monitoring Systems (VMS) is a system in which an on-board transponder relays position, date, speed, and directional information to (shore-based) fishing authorities in real time, can be used to assist with area control, border control, and provide accurate locations for patrol vessels to intercept vessels. They can be used to indicate the trans-shipment of fish and the transfer of fuel between vessels. These systems are highly effective for large vessels. However, they only work on vessels that have been fitted with the VMS equipment. They also produce large quantities of data that must be analyzed and are relatively expensive to install on smaller vessels.

Application to IUU Fishing: While gathering evidence of an IUU fishing offence remains a difficult task, electronic data has in recent times gained greater acceptance as reliable evidence in court proceedings. Satellite imagery provides accurate spatial information on the location of fishing vessels across large areas, and when used in conjunction with VMS data, can assist in the detection of illegal fishing activities. However, it is an expensive technique to use if used frequently, and it is difficult to identify individual vessels from the images.

All European Union vessels above 15 meters in length are fitted with a *Vessel Monitoring System (VMS)*. Similar systems are operational or being brought into operation in other fishing areas and by other fishing nations. The system relies on satellite navigation and communication technologies. A “blue box” installed on board the vessel transmits the GPS-derived vessel position by satellite to the Fisheries Monitoring Centre (FMC) in the flag state which then communicates the information to the state or regional fishery body in whose waters the vessel is fishing. The period between transmissions varies but is normally between one and two hours.

Cellular phones are devices of high interest to people designing low-cost systems and are considered the best field solution for many artisanal fishermen. Advantageous features of smart phones include mobility, durability, wireless capability, and programmatic support for automatic tracking and transmission as well as manual data collection. Disadvantages of smart phones are that power typically lasts a maximum of 24 hours and automatic transmission capability is dependent on cell coverage, although data collected locally can be stored for later transmission. In addition, there is open-source software compatible with smart phones, which includes support for ecological / biological monitoring, as well as operational support and other needs of fishermen.

Conventional MCS Methods

In addition to these modern technologies the conventional methods or tools of MCS are still in use and they include:

Patrol vessels can be used during fishing to collect legally acceptable evidence of legal and illegal fishing activities. The personnel aboard these types of vessels can verify gear types, catch, logbook entries, discards and dumping. Patrol vessels are considered to be the most important tool in managing offshore and foreign fleets. However, vessels are costly to operate, and can only cover relatively small areas.

Patrol aircraft (planes and helicopters, unmanned aerial vehicles – UAVs-) can gather accurate vessel location and identification data over large fishing zones, and over short periods of time. This information is useful for the accurate deployment of compliance vessels. They can also gather information on the location of schools of fish and large marine mammals and gather data on reef habitat integrity. However, patrols aircraft cannot verify gear or catch, and are relatively expensive to deploy.

Beach patrols can be used to monitor fishing activities through the checking of licenses, bag limits, size limits and gear restrictions. It is also possible to conduct surveys with the fishermen while undertaking patrols which can provide a wealth of information on the near shore and shore artisanal and recreational fisheries and their participants. In some cases, beach patrols may be limited as certain areas cannot be reached by vehicle. Furthermore, their visibility can be a disadvantage as illegal fishermen may see the patrol and take evasive action.

Landing points offer an opportunity to fisheries authorities to ensure that fishermen are complying with the input and output controls that have been put in place for a particular fishery. At the point of landing, fisheries officers can inspect catches, obtain log book information and undertake weighing and measuring of the catch per species. The major limitation with collecting data at landing points is that no data on locations, gear types used, fish trans-shipments, discards, by-catch, or dumping, can be obtained or verified.

Post landing data sources include data collected from wholesalers, national and export markets and transport companies. Data from these sources can be

used to check that the volume of product is similar to that reported at landing. This also provides market information and price data. The limitation of post landing data is that it is often difficult to trace from where the fishery products originated.

Observer Programs

What are Observer Programs?

Observer Programs is a proven, valuable source of information on the fisheries, unobtainable by any other means. Data acquired by the program are important in identifying the species and size selectivity of several marine fisheries and in reducing bycatch of protected species. Furthermore, these data improve the biological and economic assessments of the fisheries. In other words, Observer programs provides the regulatory framework for fisheries management as well as ensure compliance with fisheries regulations. Those who collect scientific information are called Observers; those who are concerned with regulations are called Compliance Officers or Inspectors. Fishery observers are generally fishery biologists or college graduates with a concentration in biology. Compliance Officers, also termed Inspectors in some cases have varied backgrounds. Some have extensive practical experience in commercial fishing or other maritime occupations.

Where do Observers and Compliance Officers work?

Observers and Compliance Officers work both on land and at sea. The information collected by observers provides the best scientific information to manage the fisheries. Compliance officers generally have a legal mandate to enforce the fisheries laws of the country and hence their work deters illegal activities whilst they are on board the fishing vessel. When justified, inspectors may have the power to arrest a vessel at sea and have it return to port. Limitations associated with observer programmes include that the observers require significant training, and that this option is only suitable for larger vessels as the observers need to be accommodated on the boat

Land-based observers: Land-based observers are generally stationed or may travel to ports or landing

sites where either commercial or artisanal vessels off-load their catch. The observer's tasks would include recording the fishing methods used and the catch composition of the landed catch and collect biological information for all or some selected species. In some commercial ports the fisheries authorities may establish research laboratories to collect and record more specific scientific data from the catches landed in the port.

Sea-based compliance officers (inspectors): Sea-based compliance officers may be deployed onto vessels for the duration of the trip to monitor fishing activities directly and report on adherence to compliance measures stipulated in license conditions issued by the State. Alternatively, compliance officers may operate independently from a patrol vessel and board and inspect fishing vessels at sea. At-sea inspection can include monitoring gear and catch onboard

Land-based compliance officers (inspectors): Compliance officers are stationed or travel to ports or landing sites where either commercial or artisanal vessels off-load their catch. Their tasks are primarily monitoring whether the gear and landed catches conform to the legislated requirements of the fisheries. Should they find that a vessel or its crew do not conform to any of these requirements they have the authority to prosecute offenders.

Why is the data of Observers so important?

There are three basic functions to effectively preventing fish stocks from becoming over fished: stock assessments to monitor the status of fish populations; knowing the biological limitations of fish populations; and knowing how much is being removed from the sea. The third function is achieved most accurately by on-board monitoring efforts through observer programs. It is truly the only method of accurate multi-species monitoring.

What type Training do Observers receive?

Fishery observer training is comprehensive. The duration varies and training courses are given by experts in a variety of fields. Fishery observers are instructed in the identification of fish, mammal,

bird, turtle, and invertebrate species, as well as gear identification and measurement, marine safety, and survival skills. The training program also involves aspects of briefing, debriefing, methods to collect catch data onboard fishing vessels and at onshore processing plants that is used for in-season management and scientific purposes such as stock assessments and ecosystem studies. The goal is to ensure that the data collected by observers are of the highest quality possible by implementing rigorous quality control and quality assurance processes for the data collected by observers. A variety of training Manuals are available in all regions of the Continent and AU -IBAR has also produced a Training Manual for Observers.

Summary of MCS Status and Challenges in Africa

MCS systems exist in several countries and in all the five regions. Some countries have just one component, while others have a combination of the three components. Although some African countries have acquired the capacity for the modern technologies particularly VMS, many still rely on the conventional methods of monitoring and observing fishing activities, especially for countries with principally artisanal fisheries. However, several countries, especially those with sizeable industrial fisheries do have MCS with the modern technologies such as VMS and AIS. There are also MCS systems with VMS, sonar and AIS at regional levels usually under the aegis of an organization or a project.

Many States have enacted fisheries legislation with MCS-related provisions, mainly as a police function to punish law breakers; however not all of them fully implement international and regional obligations and commitments. A number of countries, have comprehensive legal framework for fisheries, which includes measures to address fisheries crime, and is supported by a full MCS operational unit. Several countries have relatively updated legislation on fisheries but only with some specific regulations on MCS; while many have a more basic MCS framework in place and very little regulations and evidence of implementation. A number of countries have included in their legislation participatory approach to management which may be

developed to encourage voluntary or self-compliance amongst fishers in the absence of other MCS tools

On-going Regional MCS systems

Several African States, cooperate with each other, bilaterally and multilaterally, in implementing MCS measures through regional programs. A number of organizations, such as, the Sub regional Fisheries Commission (SRFC), the Indian Ocean Commission (IOC) and Southern African Development Community (SADC), have put in place regional MCS programs.

The Sub regional Fisheries Commission of Northwest Africa (SRFC) was established by Convention in 1985 and is made up of seven Northwest African States (Cape Verde, Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal and Sierra Leone). The Commission has undertaken activities in MCS. In addition to licences, vessels are subject to gear restrictions and inshore exclusion zones, and zoning by type and species fished. Port pre-license inspections are carried out in some States, and FAO vessel marking by call sign is either legislated or recommended throughout the region. Transshipping is widely monitored, although lack of sea-borne surveillance reduces its effectiveness.

The major focus initially on MCS, was the provision and funding of fisheries aerial surveillance. In 1994, the Commission set up the Surveillance Operation Coordinating Unit (SOCU); based in Banjul, The Gambia and financed by the Government of Luxemburg, to provide support to the secretariat of SRFC by collecting information on fishing operations along the coast of its seven-member countries, train air observers, and reinforce cooperation between the countries of the sub-region. Sub regional flying commenced in July 1996. The original three aircraft were stationed in Cape Verde, Senegal and Mauritania. SOCU worked intimately with coast guards of the countries, and such joint operations contributed to the arrest and prosecutions of vessels fishing illegally. Between 2002 and 2006, 1102 vessels were detected, 378 were inspected and 55 vessels arrested. The value of aerial surveillance as a control mechanism against illegal fishing in the sub region has been demonstrated and accepted.

A pilot VMS scheme commenced operation in Senegal in 2000. There are many patrol boats within the sub region, in various states of operational readiness. Many are unsuitable, either because of general condition or cost-effectiveness. The sub-region faces the serious and ongoing situation involving a hard core of illegal trawlers fishing without licences, or in some cases semi-legitimately with licences. These vessels are often protected in their operations by vested interests, and fish with no regard whatsoever to fisheries regulations or good practices.

Southern African Development Community (SADC), whose Protocol on Fisheries was signed in 2001 and entered into force on 8 August 2003, aims to achieve regional integration and eradicate poverty within the Southern African region. In July 2008, SADC ministers responsible for marine fisheries, signed in Windhoek, Namibia SADC Protocol on Fisheries, which is a statement of commitment on IUU fishing. In this protocol, the ministers declare they would strengthen fisheries governance and legal frameworks to eliminate illegal fishing and strengthen MCS capacity – and resolve to commit to effective implementation of existing MCS measures.

The objectives of the Protocol on Fisheries are to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems of interest to State Parties in order to:

- promote and enhance food security and human health;
- safeguard the livelihood of fishing communities;
- generate economic opportunities for nationals in the region;
- ensure that future generations benefit from these renewable resources; and
- alleviate poverty with the ultimate objective of its eradication.

By signing the SADC Protocol, the Member States agreed to harmonize their domestic legislation with particular reference to fisheries and the management of shared resources, to take adequate measures to optimize fisheries law enforcement resources in order to protect aquaculture and the aquatic environment and safeguard the livelihood of fishing communities

SADC has undertaken activities related to the establishment of effective cooperation on MCS among the SADC coastal Member States. A Regional Fisheries Monitoring project funded by the African Development Bank is ongoing. The SADC Regional Fisheries Monitoring project seeks to develop a regional MCS strategy and regional plan of action in relation to IUU fishing. Regional MCS activities are to be coordinated at the SADC MCS Centre to be established in Maputo, Mozambique. Among the regional activities are enhanced information sharing, the development of a regional fishing vessel register, and regional VMS framework. It is also envisaged that national capacity for MCS activities among member states will be improved.

Under the regional initiative the intention is to improve regional and inter-regional cooperation with a view to eradicating IUU fishing; strengthen fisheries governance and legal frameworks to eliminate illegal fishing; develop a regional MCS strategy and a regional plan of action in relation to IUU fishing; and strengthen fisheries MCS capacity.

On 4 July 2008, the 'SADC Statement of Commitment on IUU Fishing' was signed by Ministers at the Ministerial Conference and it was later endorsed by the SADC Summit. This commitment was followed by various implementing actions:

- Strengthened and successful implementation of SADC coastal State laws relating to IUU fishing;
- Strengthened policy and legal frameworks to address the issue of IUU fishing;
- Stop Illegal Fishing – established to support this process was deemed a success; and
- SADC IUU fishing Task Force was appointed in 2011.

The "Stop Illegal Fishing campaign" is the first ever multilateral patrol involving four neighboring countries of South Africa, Mozambique, Tanzania and Kenya. Monitoring the landings of IUU vessels has dramatically improved in South Africa and in other ports in countries that are signatories to the SADC Fisheries Protocol. SADC countries have signed a protocol on data exchange which has not been implemented due to technical difficulties and the low number of countries with fully functioning VMS systems.

The Indian Ocean Commission (IOC) is working toward sustainability through their program for the Coastal, Marine and Island Specific Biodiversity Management in the Eastern and Southern Africa and Indian Ocean region (ESA-IO region). This project aims to maintain the region's biodiversity through improvements in policy, education, and data networking systems, and the implementation of Biodiversity Thematic Centers.

To reduce IUU fishing in the region, the IOC works through the Regional Fisheries Surveillance Plan (RFSP) and the SmartFish program. Additionally, RFSP promotes regional sustainable fisheries management and development. SmartFish aims to improve fisheries governance and management using the Action Plan that has been prepared for fisheries management and development for the ESA-IO region. SmartFish among other things, seeks to develop effective monitoring, control and surveillance capabilities. The program investigates and assesses the capacity of individual countries to implement MCS and is establishing individual needs and expectations. The program also promotes compliance with regional and international instruments and agreements. SmartFish seeks to sustain MCS activities and ensure a reliable institutionalization. Among SmartFish's MCS activities are: Data-sharing, Flag State and Port State measures.

The IOC Regional Fisheries Surveillance Plan (RFSP) seeks to pool and share existing capacities of coastal states in the region to consolidate and perpetuate the regional MCS strategy by monitoring regional fisheries through targeted and deterrent controls based on risk analysis. In support of this goal the RFSP coordinates regional and national patrols, plans joint aerial and maritime patrols, sets monitoring priorities and annual action plans.

As of February 2014, the program has held 39 joint patrols, deployed 350 inspectors at sea, logged 1,100 maritime patrol days and 850 aerial patrol hours, conducted more than 420 inspections at sea of fishing vessels - a number of which are vessels that do not go to port, and cited 10 fishing vessel arrests and 40 infringements.

Under the SmartFish Program, the IOC Member States have been provided with support in addressing issues associated with IUU fishing through regional MCS cooperation. The Member States are therefore able to achieve the following;

- Exchanging VMS and satellite positioning data;
- Collection of data by IOC;
- Collection of observer data;
- Data from neighboring States (South Africa, Mozambique, Kenya, Tanzania, Somalia);
- Data of vessels licensed; and
- Specific support to national control and monitoring of fisheries center of the Union of Comoros.

Major Challenges

Vessel Registers: Most countries with active fisheries have vessel registers, but these are not regularly updated and the information shared between states of the African Union. A possible reason is that the countries may not have many industrial or semi-industrial fishing vessels under their own flag. In these countries, the focus is on artisanal fisheries which present a very different problem. In countries with significant industrial commercial fisheries sectors there are formal data bases – these are normally comprehensive integrated systems that incorporate many different fields. There are no credible regional fisheries vessel registers.

Partnerships and participatory MCS: National Observer programs are in place in some countries, but in general they are not very effective., RFMOs such as IOTC and ICCAT have effective management frameworks in place to implement and coordinate a regional observer program. The program is however still dependent on contracting Members to train and deploy observers and this is a set-back for AU-MS members of these bodies that do not have the capacity to monitor fishing activities in their EEZ. Attempts have been made, over the past three decades, to train national observers to regional standards; these are somewhat ineffective in the face of management and coordination problems at a national level. There are no specific rules regarding national observer coverage levels. However, all the RFMOs have Conservation or Management Measures (CMMs) in place requiring vessels to accommodate

scientific fisheries observers, with stipulated observer coverage requirements. Few AU-MS meet their commitments.

Insufficient human resources: Effective MCS systems depend on acquiring quality personnel and training them to the levels required to perform their duties efficiently. However, the lack of the appropriate capacity and in sufficient number is a major stumbling block in most AU-MS. Needless to say, credible staff with a high degree of integrity and professionalism is important to ensure the success of any MCS system

Training programs on wide ranging topics on MCS have been conducted in all the regions over the past three decades by international organizations including FAO, Indian Ocean Commission, regional fishery bodies such as the Sub Regional Fisheries Commission (SRFC), RFMOs and regional Projects. While such programs seemed to have been useful they are not sustainable because for a variety of reasons countries have not capitalized on them. Several Training Manuals are available in the continent.

Lack of effective legal framework: The lack of an effective legal framework is recognized as an impediment to an effective and fully functional MCS. A number of institutional and practical challenges are confronted by African States in establishing a robust legal framework, such as the long process of updating laws and developing comprehensive regulations, the need for a thorough understanding of the legal aspects of MCS tools, lack of use of MCS information in judicial proceedings, lack of strong collaboration between institutions with fisheries-related functions, and inadequate financial and human capacity.

Issues related to Enforcement: Many countries have weak enforcement apparatus in place, in that MCS tends to be limited to surveillance whereas fisheries enforcement aims to ensure the correct application of regulations regarding fisheries and to impose compliance with these rules where necessary. Enforcement activities are designed to respond to non-compliance and include: Formal inspections to verify compliance using overt and covert means. Investigation of suspected

breaches of the laws; measures to compel compliance without resorting to formal court action; for example, warning letters, directions; notices, penalty notices, Ministerial orders – or a combination of these. The use of maximum sanctions as effective deterrents such as seizure of fish, fishing gear, boats, trailers and vehicles and withdrawal of access to a fishery through suspension or cancellation of licenses, are not frequently applied. The PFRS underscored that National and regional policies and strategies should provide the basis for regional cooperation and information sharing to support joint actions against illegal operators in the fisheries sector. The 2050 AIM Strategy, recommends that in order to further deter IUU fishing activities, sanctions “of sufficient gravity as to deprive the offenders of the benefits accruing from their illegal activities” shall be put in place as per the 2005 Rome Declaration on IUU Fishing,

Prosecutors play a key role in ensuring that any criminal proceedings pertaining to alleged cases of illegal actions are successful. However, before credible prosecutions can be undertaken, a system for monitoring, control and surveillance over the fisheries must be in place. At-Sea Boarding and Inspection is central to MCS in marine fisheries. It is probably the most critical tool for verifying compliance with the fisheries laws and regulations enacted by the coastal State or group of coastal States. Furthermore, for non-compliance to be sanctioned, the offense must be in the national legislation, reinforcing the importance for States to work towards ratification, accession, and/or acceptance, domestication and implementation of the relevant fisheries related instruments.

Suggested recommendations by 2050 AIM Strategy to combat IUU Fishing

AU Member States are urged to endeavor to deter IUU fishing activities. Recommended measures include:

- i. Effective licensing and control of vessels allowed to fish by flag States;
- ii. Real-time positional reporting by licensed vessels via Vessel Monitoring Systems (VMS);
- iii. Surveillance and interception of irresponsible fishing by on-water patrols;

- iv. Implementation of technical regulations for the safety of non-convention fishing vessels; and
- v. Promotion of effective flag State implementation in a broader context through the enforcement of RFMO measures, such as ‘white’ or ‘black lists’ to identify ‘bad actors’.

Key experiences and lessons learnt from the past and on-going regional programs include:

- cooperation of countries in eradicating IUU sends a clear message of unity of purpose;
- development of a professional MCS staff is the most important, but often least talked about component of a comprehensive MCS plan
- adequate consultative planning between participation states is critical;
- need to harmonize MCS systems among the States in the same sub-region;
- data, facts and evidence for prosecutions could be provided during MCS patrols;
- few trained observers; and this is always a challenge;
- adequate training for observers is key to quality data collection and management;
- national/domestic laws should at least have provisions for implementation of regional and international agreements, and
- ratification and implementation of PSMA is a prerequisite to effectively combat IUU fishing.

Priorities to Strengthening regional cooperation

Based on the assessment of IUU fishing phenomenon in the continent and the status of MCS systems in the regions including an assessment of the strengths and weaknesses of these systems; it is evident that, investing in seven priority areas will significantly strengthen regional cooperation in MCS for effective and strategic combat of IUU fishing in Africa. The priority areas are:

- Regional training programs on Needs Assessment on the implementation of Port State Measures Agreement to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing (PSMA).
- Comprehensive review of national legislation and regulations in the regions.
- Improvement in data collection and sharing.

- Strengthen on-going Regional Observer Programs and develop others, as appropriate.
- Promote involvement of regional and multilateral organizations in the activities.
- Strengthen on-going MCS regional programs and develop others, as appropriate.
- Regional capacity building in a number of key aspects of MCS.

Regional Training Programs on Capacity Need Assessments on the Implementation of Port State Measures Agreement (PSMA)

The highest priority action to strengthen regional cooperation in MCS to combat IUU fishing, is the organization of a series of regional Training Workshops on Capacity Needs Assessments (CNA) on implementing the PSMA.

The organization of such training workshops is justified because, as of 18 May 2018, 20 AU MS are Parties to the Agreement, with three others who are Signatories. All the AU MS, except one, are members of RFMOs. It is important to capitalize on the momentum that has been built up, over the past year and ensure effective implementation of the Agreement.

Implementation of the Port State Measures Agreement to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA) is the best option to combat IUU fishing. This is because port State measures are a part of a larger, integrated monitoring, control and surveillance (MCS) system, particularly useful for the regulation of foreign-flagged vessels that have fished or may have fished outside the waters of the port State. The measures apply to fishing vessels and, significantly, to vessels engaged in fishing related activities (such as transshipping and resupplying) that may have supported IUU fishing vessels.

Port-based compliance and enforcement measures, tend to be relatively cost-effective when compared with many other elements of an MCS system. The main cost is related to establishing and maintaining an adequate, well-trained fisheries inspectorate with good levels of communication between national agencies, including

customs and port authorities, and cooperation with regional bodies, such as regional fishery bodies. The optimum use of information gathered during inspection and from other components of the national, regional and international MCS system is also an important characteristic of the PSMA. This implies that to fully implement the PSMA, good communication is needed among national agencies involved in fisheries management, such as customs and the port authority, as well as cooperation with appropriate regional and global bodies.

In addition, effective implementation of the PSMA, requires each AU MS to have:

- The legal authority to enable effective enforcement action in accordance with provisions of the PSMA and other international legal instruments relating to fisheries.
- A sufficiently staffed, adequately trained and well-informed inspectorate, operationally well-integrated with the larger MCS system.
- Systematic cooperation and sharing of information and intelligence between national agencies associated with different aspects of MCS and among port, flag and coastal States, RFMOs and other organizations.

To be able to implement the Agreement successfully, it is indispensable to conduct a capacity needs assessment (CNA). FAO has developed a Guide for that purpose and recently, the PEW Charitable Trust, in cooperation with the New Partnership for Africa's Development (NEPAD), through its Stop Illegal Fishing Working Group, and six African countries (Cote d'Ivoire, Kenya, Mozambique, Senegal, Seychelles and United Republic of Tanzania), has supported the development of a capacity needs assessment (CNA) methodology, which is part of a set of tools, to ensure that States have the necessary tools at hand to effectively implement the PSMA, and can move quickly towards closing all ports to the world's fleets engaged in IUU fishing.

In addition, AU-MS that are yet not so, are encouraged to: work toward ratification, accession, and/or acceptance, domestication and full implementation, of the other international instruments. For States that

are willing but do not have the capacity to undertake the domestication process, some of the international instruments have provisions for assistance to developing countries.

Comprehensive Review of national legislation and regulations

An MCS system needs to be based on clear legal rules that set out the rights and responsibilities of the various parties, in order to be effective. These rules should provide effective and efficient legal procedures and mechanisms for implementing those rules consistently. It is therefore important to review the existing national legislation and regulations of countries in a region to ensure they are up to date in their laws and policies; that the legislations and regulations contain relevant provisions on MCS, in particular, that they prescribe norms that are appropriate to achieve the desired fisheries management objectives and contain provisions that facilitate effective enforcement; and that there are no conflicts between the laws and regulations of Member countries which might make regional cooperation difficult.

The review will include an analysis of gaps/weaknesses, and challenges in their implementation/enforcement; identification and analysis of areas requiring harmonization (convergence) for sustainable transboundary fisheries resources management, and combat IUU activities; with recommendations for effective implementation of the proposed harmonized legislation and regulations.

Improvement in data collection and sharing

The collection, management and availability of accurate and timely information is critical for managing fishery resources and combating IUU fishing. Accurate data on the number of fishing vessels, the history and characteristics of the vessels and fishing activity is required to track vessels that are registered, flagged, licensed or even active in the region in order to help deter IUU fishing activity. It is therefore important to maintain comprehensive and up-to-date vessel registers and catch and effort information as well as socio-

economic information in a uniform and harmonized manner, by all States, both coastal and flag. In this regard, countries in the same region should:

- Work together to improve their data collection systems and to share information about vessels, fishing effort, catch levels, fish landings and sales of fish and fish products, as appropriate, and; work to develop a regional approach to identify, compile and exchange information on any vessel used or intended for use for the purpose of fishing including support ships, carrier vessels and any other vessels directly involved in such fishing operations in the region. and across national jurisdictions
- Work to eventually have a Regional Fishing Vessel Register

Critical to any form of regional data collection, undertaken by individuals from different member States and deployed in different national waters, is that the data collected is uniform throughout the region.

Develop/strengthen on-going Regional Observer Programs (ROP)

Regional Observer programs constitute a viable option to combat IUU fishing. Observer programs provide the regulatory framework for fisheries management, as well as, ensure compliance with fisheries regulations. Those who collect scientific information are called Observers; those who are concerned with regulations are called Compliance Officers or Inspectors.

Regional fisheries observer programs benefit the regional and national organizations involved as well as the observers, vessel owners and the Fisheries Management Authorities (FMAs), in terms of shared training and management costs, dual use of observers and easier movement of vessels between nationally and regionally managed waters. There is a need to develop/strengthen, as appropriate, these programs including the requirements for industry to adhere to inspection regimes and carry observers on board when required.

However, regional observer programs will only be effective if all observers meet the same level of competency standards (minimum requirement and

training), share the same data collection objectives (compliance and scientific) and benefit from similar management action (briefing, work and sampling protocols, debriefing, and reporting).

There are several Training Manuals in the continent. AU-IBAR has produced the draft of the Framework for establishing a sea-based regional fisheries observer program. The Document, among other things, outlines the objectives, legal framework, financial requirements, institutional arrangement and management, monitoring and sampling strategies, etc. The AU-IBAR Observer Training Manual focuses on sea-based scientific observers (although similar practices could be applied to shore-based observers) and provides a regional standard for the training of observers.

Promote involvement of regional and multilateral organizations in the activities

Combating IUU fishing is a continental issue. The management and technical capacities built up over the years by regional organizations, particularly RFMOs, should be harnessed to assist with the phenomenon of IUU fishing. AU-MS, members of RFMOs, should work closely and collaboratively to meet their obligations. AU MS should encourage RECs and other relevant regional organizations to provide assistance in technical support and development of guidelines, manuals, capacity building, sharing data and information on fisheries and trade, etc.

Strengthen on-going MCS Initiatives and establish others, as needed

It is important to strengthen the on-going MCS initiatives in East and Southern Africa under the aegis of IOC and SADC and revamp the Sub-regional initiative in Northwest Africa under the Sub Regional Fisheries Commission.

The five AU MS of North Africa indicate that there is need to support and strengthen the General Fisheries Commission for the Mediterranean's (GFCM) center and centralized VMS system and other MCS tools. In this regard, the countries suggested the conduct of

an identification/feasibility study to assess the costs of introduction of transponders (VMS or other MCS tools) to enable the states concerned to interact with the centralized system for MCS and alert on IUU fishing, as well as search and rescue at sea.

For the other regions which do not yet have regional MCS systems, it is important to note that some of the countries already have patrol boats as well as VMS. Working through their respective regional fishery bodies, it has to be determined that there is the political will and commitment for a comprehensive regional MCS. Feasibility studies should be undertaken to determine its viability, followed by the elaboration of a Plan of Action to accomplish the task. In the meantime, the states should strengthen cooperation by engaging in MCS activities with other states; sharing information, conducting regional training on both the legal and practical aspects of Vessel Monitoring System and Observer Programs to facilitate cooperation among legal and technical personnel; and adopt lessons learnt from successful regional MCS fisheries programs such as IOC's SmartFish. The regional fishery bodies should establish formal arrangements and protocols between them and RFMOs in the same region that will facilitate exchange of information on IUU fishing and data obtained from MCS tools, and exchange experiences with these RFMOs. Joint initiatives should be developed between the regional fishery bodies and arrangements and RECs by exchanging information that will achieve common fisheries objectives and adopt policy measures within the purview of RECs to encourage cooperation against fisheries crimes.

Regional capacity building

Capacity building and training is an essential component to any MCS system and should be viewed as a continuous process. The level of expertise that is required by MCS staff ranges from basic literacy, interpersonal skills and general knowledge of the fishery, to higher level expertise such as those required for management, data analysis, and addressing policy and legal aspects. These latter components usually require higher level skills that are obtained through tertiary education. Training programmes have to take into consideration staff

turnover rates, personnel development, and additional training that may be required for new equipment or procedures that are incorporated into the MCS system.

AU MS need sufficient human resources and expertise to fulfil the roles assigned to them under each of the MCS components. To build these capacities, AU MS should

- Continue developing the appropriate core competencies in MCS systems including managerial aspects of MCS, the right mix of technological and community approaches to MCS, inspections at sea and in port, the use of force, enforcement, the basic obligations of coastal, flag and port States, as well as prosecution and judicial processes, taking into account the different legal systems (common law and civil law).
- Ensure that flag States from outside the region that operate in the region be urged to cooperate with and assist technically and financially, those AU MS in the region in whose waters they conduct fishing operations.

Candidates for such training should include not just technical and administrative staff but also those from judicial and legal department, Trade, the Navy or Coast Guards, etc. as appropriate to the region.

Conclusion

Collectively AU MS should combat IUU fishing by judiciously implementing the priorities suggested in this policy note. The strength of a regional mechanism will depend on the strength of MCS at national level, hence AU MS are urged to continuously improve on their MCS system. It is important that any formal arrangements within regions or sub-regions have provisions that will enable wider cooperation with other African sub-regions or regions. As RECs are playing a major role in the coordination of the 2050AIM Strategy, it is extremely important that those directly involved in piloting regional MCS initiatives maintain close working contact with their respective RECs to ensure synergy in their work and avoid duplications, as some of the activities could be best achieved in a collaborative mode.

Further Reading

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Note: This Policy Note is a synthesis of series of reports based on activities conducted under the project ‘Strengthening Institutional Capacity to enhance governance of the fisheries sector in Africa, Project number: DCI-FOOD 2013/331 -056’ funded by the EU.

Citation: AU-IBAR, 2018. Policy Note: Priorities for Strengthening Regional Cooperation in Monitoring, Control and Surveillance for Effective and Strategic Combat of Illegal, Unreported and Unregulated (IUU) Fishing in Africa.



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