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## THE 2030 AGENDA AND THE SUSTAINABLE DEVELOPMENT GOALS: THE CHALLENGE FOR AQUACULTURE DEVELOPMENT AND MANAGEMENT





**THE 2030 AGENDA AND THE SUSTAINABLE DEVELOPMENT GOALS:  
THE CHALLENGE FOR AQUACULTURE DEVELOPMENT AND  
MANAGEMENT**

by  
**John Hambrey**  
Hambrey Consulting  
Strathpeffer  
United Kingdom of Great Britain and Northern Ireland

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## **PREPARATION OF THIS DOCUMENT**

The purpose of this paper is to inform FAO's constituencies and aquaculture stakeholders about the nature of the 2030 Agenda, the Sustainable Development Goals and associated targets, their relationship with the High Level Political Forum on Sustainable Development, the Aichi Targets, The Paris Climate Agreement and the Addis Ababa Action Agenda; and their relevance for aquaculture development policy and action. This paper was prepared by John Hambrey and draws on desk based research and many years practical experience of aquaculture development throughout the world. FAO's Aquaculture Branch commissioned the development of this paper, which was supervised and reviewed by Uwe Barg (Aquaculture Officer) and Malcolm Beveridge (Acting Head, Aquaculture Branch). Most valuable comments and suggestions were contributed by Anna Rappazzo (Technical Advisor Agenda 2030) and Dorian Navarro (SDG Indicators Programme Advisor to the FAO Chief Statistician).

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*The 2030 Agenda and the Sustainable Development Goals: The challenge for aquaculture development and management*, by John Hambrey. FAO Fisheries and Aquaculture Circular No. 1141, Rome, Italy.

#### **ABSTRACT**

This report explores the nature of the 2030 Agenda, its goals and targets, and their relevance to aquaculture development. It examines the potential contribution of aquaculture development to the SDGs, and the strengths and weaknesses of existing aquaculture guidance to support implementation of the agenda. Almost all the SDGs, and many associated targets are relevant to aquaculture development. Existing guidance and initiatives designed specifically to promote sustainable aquaculture development (including the Code of Conduct for Responsible Fisheries (CCRF) and associated Technical Guidelines; the Bangkok Declaration & Phuket Consensus; the Blue Growth Initiative) will support delivery of the SDGs. These guidance instruments and initiatives should be strengthened in some key cross-cutting areas. A critical precondition for ensuring that aquaculture development aligns with, and contributes to, all the relevant SDGs, and addresses the challenges noted above, is a supportive “enabling environment”. Good policy and planning are the means to create such an enabling environment.

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**ABBREVIATIONS AND ACRONYMS**

AAAA	Addis Ababa Action Agenda
ANAF	Aquaculture Network for Africa
BMP	Best Management Practices
CBD	Convention on Biological Diversity
CCRF	Code of Conduct for Responsible Fisheries
CSD	Commission for Sustainable Development
FfD	Financing for Development
HLPF	High Level Political Forum
IAEG	Inter-agency and Expert Group on SDG indicators
ILO	International Labour Organization
MASA	Micronesian Association for Sustainable Aquaculture
MDG	Millennium Development Goals
NACA	Network of Aquaculture Centres in Asia Pacific
ODA	Official Development Assistance
RAA	Red de Acuicultura de las Américas – Aquaculture Network for the Americas
SDG	Sustainable Development Goal
UN	United Nations
WCED	World Commission on Environment and Development

See also Annex 2 for an expanded presentation of the various initiatives and institutions relevant to this report.

## SUMMARY

The Sustainable Development Goals are a universal set of goals and targets agreed by 194 UN member states to guide their development policies and initiatives over the next 15 years. The SDGs apply equally to developed and developing countries, and the framework of targets and indicators provides the basis for stimulating initiative, monitoring performance and leveraging compliance.

The 2030 Agenda focuses on the elimination of hunger and reduction of poverty and inequality (opportunity, resource access, gender, youth) in all their forms. It is associated with a financing framework (The Addis Ababa Action Agenda) that recognizes the need not just for innovation and business development but also social protection. It commits to support the Paris Agreement on Climate Change, by promoting and facilitating energy efficiency and clean energy. It seeks to increase resilience – to climate change, weather and natural disaster, market volatility and political instability. And it seeks to reduce the pressure of human economic activity on the natural environment by stressing the need not just for habitat and ecosystem protection, but also increased resource use efficiency, and sustainable production and consumption – thereby spreading responsibility for delivering sustainability across all economic players.

Almost all the SDGs, and many associated targets (more than 34), are relevant to aquaculture development. Existing guidance and initiatives designed to promote sustainable aquaculture (including the Code of Conduct for Responsible Fisheries (CCRF) and associated Technical Guidelines; the Bangkok Declaration & Phuket Consensus; the Blue Growth Initiative) will broadly support delivery of the SDGs. Nonetheless, it is arguable that these guidance instruments and initiatives should be strengthened in some key cross-cutting areas, including:

- Poverty alleviation, hunger eradication and creation of decent work
- Leaving no-one behind: equity, human rights, access and opportunity for all (e.g. sites, skills, finance, inputs, market intelligence)
- Resource use efficiency and waste reduction
- Resilient aquaculture farming systems
- Genetic resource sharing and conservation
- Fair and productive value chains

Implementing the SDGs also requires that we address several outstanding conceptual and practical challenges including: how to deal with trade-offs between different sustainable development objectives; the nature of environmental capacity or limits to growth; integration and complexity; environmental assessment and precaution; adaptive planning and management systems; human and labour rights; capacity development of institutions; and stakeholder participation and empowerment.

A critical precondition for ensuring that aquaculture development aligns with, and contributes to, all the relevant SDGs, and addresses the challenges noted above, is a supportive “enabling environment”. This should include:

- Well-designed policy and planning;
- Effective and efficient legal and regulatory frameworks;
- Supportive institutions (e.g. training and advice); and
- Financial facilitation and incentives.

Together these should create a framework that seeds and stimulates aquaculture enterprise, allows and facilitates sustainable development, identifies and removes bottlenecks, constrains unsustainable or unfair practice, and corrects market imperfections or inappropriate social constraints. Good policy and planning are the means to create such an enabling environment, and are surprisingly weak in most countries.

This report explores the nature of the 2030 Agenda, its goals and targets, and their relevance to aquaculture development. It examines the potential contribution of aquaculture development to the SDGs, and the strengths and weaknesses of existing aquaculture guidance to support implementation of the agenda. The Common Vision for Sustainable Food and Agriculture is highlighted as key reference for the implementation of the SDGs in the food and agriculture sector.



## 1. INTRODUCTION

The Heads of State and Government and High Representatives, meeting at the United Nations Headquarters in New York from 25-27 September 2015 agreed a new 2030 Agenda for Sustainable Development, built around 17 goals and 169 targets (UN, 2015a).

The [2030 Agenda](#) and its seventeen [Sustainable Development Goals \(SDGs\)](#) build on the Millennium Development Goals (MDGs) but are much broader in scope and ambition, encompassing the eradication of poverty and hunger and improved health and nutrition; reduction of inequality; the building of peaceful, just and inclusive societies; the protection of human rights; the promotion of gender equality and the empowerment of women and girls; and the lasting protection of the planet and its natural resources. It also aims to create conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all, taking into account different levels of national development and capacities.<sup>1</sup> The 2030 Agenda advocates sustainable development in all of its three dimensions, for all countries (developing and developed), based on the fundamental recognition and protection of human rights, dignity and equity.

The Agenda is complemented by two other major global commitments of 2015. The [Addis Ababa Action Agenda \(UN, 2015b\)](#), which provides a framework for financial and non-financial means of implementation; and the [Paris Climate Agreement \(UNFCCC, 2015\)](#), with which all actions undertaken to further the Agenda must be compatible.

In close collaboration with the rest of the UN system, FAO has been a key player in raising awareness and providing guidance on sustainable aquaculture development and management, primarily through the [Code of Conduct for Responsible Fisheries \(FAO, 1995\)](#) and its associated technical guidance. It is therefore appropriate to consider the challenges and opportunities that the Agenda brings in terms of promoting socially, economically and environmentally sustainable aquaculture, and the role of FAO in furthering the Agenda's goals in relation to aquaculture.

This paper aims to inform FAO's constituencies and aquaculture stakeholders about the nature of the SDGs and associated targets, their relationship with the High Level Political Forum on Sustainable Development, the Aichi Targets, The Paris Climate Agreement and the Addis Ababa Action Agenda; and their relevance for aquaculture development policy and action.

## 2. BACKGROUND AND CONTEXT

### 2.1 Laying the foundations

Sustainable development has been a key term and concept in development terminology since the publication of the Brundtland Report ([Our Common Future; WCED, 1987](#)). However, international commitments to the concepts underlying sustainable development go back at least as far as the 1972 [Stockholm Declaration on the Human Environment \(UN, 1972\)](#), and even the [Club of Rome](#) in 1962.

The *Stockholm Declaration* included a set of principles that foreshadow many of those subsequently articulated in major international agreements on sustainable development, including:

- Human development and economic development depend on, but may also affect the quality of the natural environment and associated resources;
- We have a duty and responsibility to safeguard natural resources and associated ecosystems for future generations;
- Non-renewable resources are finite, should not be exhausted, and use-benefits should be shared;
- Environmental policy and regulation should not hamper present or future development, and the costs of regulation and management should be understood and met where appropriate;

<sup>1</sup> UN, 2015a. Transforming our world: the 2030 Agenda for Sustainable Development. <https://sustainabledevelopment.un.org/post2015/transformingourworld>

- An integrated and coordinated approach to development planning is needed, and such planning should be capable of reconciling the needs of development and environment, and maximising social, economic and environmental benefits;
- Science, technology and environmental education may underpin improved environmental management;
- Nations have sovereign rights to exploit their own resources – and corresponding responsibilities;
- Environmental degradation may have international implications and may need international solutions;
- Standards and requirements may differ between countries at different stages of development.

The declaration also included some economic insights – for example, that primary commodity price instability may undermine good environmental management - that have received less attention in subsequent articulations; although this is again recognized in the SDGs.

The term *sustainable development* was not used explicitly in the 1972 declaration, but was used increasingly in the late '70s and early '80s to encompass many of the above, and other principles as promoted by differing interests and pressure groups.

In 1983, the UN General Assembly created the *World Commission on Environment and Development*. It built on what had been achieved in Stockholm, and in 1987 published its report “*Our Common Future*” (commonly known as the “Brundtland Report”<sup>2</sup>). The report (WCED, 1987) presented a comprehensive assessment of development and environmental issues across the globe, and highlighted the need for urgent action in many different arenas. It presented comprehensive proposals for institutional and legal change, and increased international cooperation in support of sustainable development. Despite the scale of global problems, the Commission was relatively positive in outlook, envisaging “*a new era of economic growth, one that must be based on policies that sustain and expand the environmental resource base*”.

The report defined sustainable development as:

*"development which meets the needs of the present without compromising the ability of future generations to meet their own needs".*

This has become the most widely agreed and politically significant definition. The Commission sought to put some flesh on this basic idea (Box 1). In addition to the core principles highlighted in the 1972 declaration, they emphasised (*inter-alia*) the following:

- The exploitation of resources, the direction of investments, the orientation of technological development, and institutional change should be consistent with future as well as present needs;
- Affluent peoples may need to adjust their lifestyle in line with the planet’s ecological potential;
- There are limits to growth that should be understood; and there is an interplay between such limits, technological development and social organization;
- Sustainable development is a precondition for – and dependent upon – poverty alleviation;
- Sustainable development demands equitable allocation of resources, as well as citizen participation in decision making;
- Population size and growth need to be in harmony with the productive potential of the ecosystem.

The report galvanised thinking, policy processes and consensus building efforts around the world<sup>3</sup>, culminating in the United Nations Conference (“Earth Summit”) on Environment and Development held in Rio de Janeiro in 1992. The summit marked the first truly international initiative to develop a global strategy for sustainable development. The conference culminated in the [Rio Declaration on Environment and Development \(UN, 1992\)](#),

<sup>2</sup> Named after its chair Gro Harlem Brundtland, then Prime Minister of Norway.

<sup>3</sup> **Sustainable development** has been defined by FAO (1989) as “*the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable*” FAO Council, 1989. [www.fao.org/nr/sustainability/sustainability-assessments-safa/en/](http://www.fao.org/nr/sustainability/sustainability-assessments-safa/en/) Corsin et al. 2007. [www.fao.org/docrep/010/ai388e/AI388E05.htm](http://www.fao.org/docrep/010/ai388e/AI388E05.htm); <ftp://ftp.fao.org/docrep/fao/010/ai388e/ai388e00.pdf>

and the [Statement of Principles for the Sustainable Management of Forests](#), which were adopted by more than 178 Governments. This was supported by an implementation action plan ([Agenda 21](#); UNCED, 1992) and the creation of a Commission on Sustainable Development (CSD) to monitor and report on implementation of the agreements at the local, national, regional and international levels. It was agreed that a five-year review of Earth Summit progress would be made in 1997.

The full implementation of Agenda 21, the Programme for Further Implementation of Agenda 21 and the Commitments to the Rio principles, were re-affirmed at the [World Summit on Sustainable Development](#) (WSSD) held in Johannesburg, Republic of South Africa in September 2002.

The [Rio Declaration](#) (UN, 1992) comprises 27 principles. Many of the principles articulated in Stockholm are re-affirmed, but several new issues are introduced or emphasised, including:

- The need to facilitate *wider participation* in addressing environmental issues, and the commensurate need for more information/transparency in relation to environmental issues and participation in decision making (Principle 1);
- The *right to development* (Principle 3) and a healthy and productive life in harmony with nature (Principle 1); and recognition that eradicating poverty is an indispensable requirement for sustainable development (Principle 4);
- The pressures that developed countries place on the environment, and their responsibility and capacity to address them (Principle 7);
- The importance of promoting *sustainable production and consumption* (Principle 9);
- The need to develop *environmental standards*, management objectives and priorities; recognize that these must be context dependent and may represent a burden on developing countries; and ensure that any such standards are not misused as barriers to trade;
- Strengthen *liability law* in relation to environmental damage;
- *Discourage "export" of damaging activities* or substances; and internalize environmental costs;
- Adopt a "*precautionary approach*";
- Undertake environmental impact assessment (*EIA*);
- Recognize the importance of *women and youth* in mobilizing sustainable development;
- Recognize and use *environmental knowledge of indigenous peoples*;
- Recognize that peace, development and environmental protection are *interdependent* and indivisible; and
- The importance of *partnership* in delivering sustainable development.

### Box 1: Sustainable Development.

From *Our Common Future* (WCED, 1987)

27. *Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development does imply limits - not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organization can be both managed and improved to make way for a new era of economic growth. The Commission believes that widespread poverty is no longer inevitable. Poverty is not only an evil in itself, but sustainable development requires meeting the basic needs of all and extending to all the opportunity to fulfil their aspirations for a better life. A world in which poverty is endemic will always be prone to ecological and other catastrophes.*

28. *Meeting essential needs requires not only a new era of economic growth for nations in which the majority are poor, but an assurance that those poor get their fair share of the resources required to sustain that growth. Such equity would be aided by political systems that secure effective citizen participation in decision making and by greater democracy in international decision making.*

29. *Sustainable global development requires that those who are more affluent adopt life-styles within the planet's ecological means - in their use of energy, for example. Further, rapidly growing populations can increase the pressure on resources and slow any rise in living standards; thus sustainable development can only be pursued if population size and growth are in harmony with the changing productive potential of the ecosystem.*

30. *Yet in the end, sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs. We do not pretend that the process is easy or straightforward. Painful choices have to be made. Thus, in the final analysis, sustainable development must rest on political will.*

Perhaps surprisingly, more integrated and coordinated *planning* is not emphasised in any of the Rio Principles as such, although its importance is recognised in the Agenda 21 Programme – in which the word *planning* occurs 224 times. The action agenda itself is comprehensive – covering 130 different programme areas under 26 chapters, outlining a basis for action, objectives, activities and means of implementation for each programme area.

Agenda 21 had significant global impact in terms of raising awareness of the nature of sustainable development and stimulating sustainable development initiative.

At the turn of the century a new initiative with a much stronger focus on poverty alleviation and international development came to the fore. In September 2000, building upon a series of United Nations conferences and summits, world leaders met at United Nations Headquarters in New York to adopt the [United Nations Millennium Declaration \(UN, 2000\)](#), committing their nations to a new global partnership to reduce extreme poverty, and setting out a series of time-bound targets to be achieved by 2015. These have become known as the [Millennium Development Goals](#) (Box 2).

#### **Box 2: The Millennium Development Goals**

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV aids, malaria and other diseases
7. Ensure environmental sustainability
8. Global partnership for development

*Adopted in September 2000 UN HQ New York.*  
 Source: [www.unmillenniumproject.org/goals/](http://www.unmillenniumproject.org/goals/)

In support of this initiative the UN Secretary General commissioned a concrete plan of action for the world to achieve the MDGs, and in 2005 the UN Millennium Project published [“Investing in Development: A Practical Plan to Achieve the Millennium Development Goals”](#).

The MDGs and their supporting plan have been highly effective in terms of framing and promoting development throughout the world. They do not explicitly place sustainability at the heart of development initiative – although this is implicit in the broader philosophy and in the recommendations in the implementation plan.

## **2.2 The 2030 Agenda for Sustainable Development**

These various strands: the *environmental sustainability strand* represented by the Stockholm Declaration, the Brundtland Report and the Rio Declaration; the *poverty eradication and development strand* as articulated in the MDGs and supporting plans; and strands relating to *labour rights* as developed by the ILO in recent decades - have now been integrated and superseded by the [Sustainable Development Goals](#) (SDGs), agreed by 194 Heads of State and Government and High Representatives, meeting at the United Nations Headquarters in New York September 2015. The aspirations for the SDGs are summed up in paragraph 3 of the declaration (Box 3).

The 2030 Agenda for Sustainable Development is probably the most comprehensive, far reaching and demanding international agreement made to date. It comprises 17 goals, 169 targets and 230 indicators. It emphasises throughout that these goals and targets are "integrated and indivisible" and must be implemented together taking full account of all potential synergies and interlinkages. The 2030 Agenda is arguably more comprehensive than its predecessors in integrating social, economic and environmental sustainability.

#### **Box 3: Paragraph 3 of the 2030 Agenda for Sustainable Development declaration**

*“We resolve, between now and 2030, to end poverty and hunger everywhere; to combat inequalities within and among countries; to build peaceful, just and inclusive societies; to protect human rights and promote gender equality and the empowerment of women and girls; and to ensure the lasting protection of the planet and its natural resources.*

*We resolve also to create conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all, taking into account different levels of national development and capacities.”*

Source: [UN. 2015a. Transforming our world: The 2030 Agenda for Sustainable Development.](#)

While there is much in common with previous articulations of sustainable development, the SDGs are more explicitly political, and are applicable to developed as well as developing countries (i.e. they are “universal”).

There is a clear focus on the elimination of hunger and poverty, and also strong emphasis on reducing inequality in all its forms (“*leave no-one behind*”), fair allocation and protection of resource and access rights, and promoting peace, justice, transparency, participation, inclusiveness and partnership. The right to “decent work for all” goes well beyond previous international commitments relating to development. Sustainability is a cross cutting theme - the word sustainable is featured in 9 of the 17 goals - and is implicit in several others. The idea of *resilience* – in the face of climate change or market and economic uncertainty – is also more explicit throughout the various targets. Interestingly, the word *precaution* – a key principle or approach in most earlier articulations<sup>4</sup> – does not occur in any of the goals or targets, or indeed in the declaration as a whole.

The details of the 2030 Agenda and its relevance to aquaculture development are considered further in the following chapters.

Closely associated with and supportive of the SDGs are the [Addis Ababa Action Agenda](#) (a framework for financial and non-financial means of implementation; UN, 2015b); the [Paris Climate Agreement \(UNFCCC, 2015\)](#), a global treaty to limit climate change, with which all actions under the SDGs must be supportive or compatible; and the [Convention on Biological Diversity \(UN, 1992b\)](#) and its most recent strategic plan for biodiversity and associated ([Aichi targets \(CBD, 2011\)](#)).

### 2.3 Addis Ababa Action Agenda

Building on the 2002 Monterrey Consensus and the 2008 Doha Declaration, The [Third International Conference on Financing for Development \(FfD\)](#), held in Addis Ababa in July 2015, committed to address the challenge of financing and creating an enabling environment for sustainable development - and in particular to support implementation of the SDGs. They agreed the need for public investment in social protection alongside public and private investment in productive sectors, with strong emphasis on agriculture and rural development. Social protection programmes can enhance nutrition, which in turn raises productivity and incomes, which in turn enhances investment in human and other forms of capital. The action agenda, endorsed by a [UN Resolution \(UN, 2015c\)](#), also recognizes that conducive policy environment and political stability are needed. Varied sources of finance are envisaged: domestic public resources; domestic and international private business and finance; international development cooperation; debt and debt sustainability. The agenda recognizes science, technology, innovation and capacity building, alongside international trade as engines for development. It further recognizes the need to address systemic issues, monitoring and follow-up as key ingredients for long term success.

Commitments were made relating to Official Development Assistance (ODA), tax cooperation, a social compact to provide social protection and essential public services, and technological knowledge sharing – although not all these commitments (and in particular ODA) were confirmed. The Addis Ababa Agenda “*aligns all domestic and international resource flows, policies and international agreements with economic, social and environmental priorities. It incorporates all the SDG means of implementation (MoI) targets into a comprehensive financing framework. It also serves as a guide for further actions by governments, international organizations, the business sector, civil society, and philanthropists*”.<sup>5</sup> In support of this, FfD monitors progress; and follow-up/review are tracked separately and reported to the High Level Political Forum (HLPF), complementing the progress report on indicators and the regional Sustainable Development fora, as well as the voluntary country reviews submitted by countries to HLPF.

### 2.4 The Paris Agreement

The twenty-first session of the Conference of the Parties (COP21) to the United Nations [Framework Convention on Climate Change](#) concluded with the adoption of the [Paris Agreement](#) in December 2015 (UNFCCC, 2015). Its aim is to strengthen the global response to climate change, including through sustainable development and efforts to eradicate poverty. It seeks to:

<sup>4</sup> For example, Principle 15 of the Rio Declaration

<sup>5</sup> Inter-agency Task Force on the follow-up to the Financing for Development outcomes and the means of implementation of the 2030 Agenda for Sustainable Development (IATF on FfD). Terms of Reference. [www.un.org/esa/ffd/wp-content/uploads/2016/01/IATF-on-FfD\\_TOR\\_Final.pdf](http://www.un.org/esa/ffd/wp-content/uploads/2016/01/IATF-on-FfD_TOR_Final.pdf)

- Hold the increase in the global average temperature to well below 2° C above pre-industrial levels;
- increase the ability to adapt to the adverse impacts of climate change; and
- foster climate resilience in a manner that does not threaten food production.

COP21 emphasises the importance of oceans and aquatic ecosystems for temperature regulation and carbon sequestration, and highlights the need to counter pollution, over-exploitation and restore productivity and ecosystem services. It also highlights the need to increase *resilience* of food production systems in the face of climate change and a growing population. Again, there is strong emphasis on international cooperation.

## 2.5 The CBD and Aichi Targets

The conference of the parties to the [Convention on Biological Diversity](#) (CBD) held in Nagoya, Aichi Prefecture, Japan in October 2010 (COP10) adopted a revised [Strategic Plan for Biodiversity](#), including a set of 5 strategic goals and 20 targets ([The Aichi Targets](#); [CBD, 2011](#)). Parties to the Conference agreed that this overarching strategic plan would be used as the framework for revising national biodiversity strategies and action plans.

The key issues addressed in the Aichi targets are summarized in Box 4. Target 8 is directly applicable to aquaculture development and several others are highly relevant.

### Box 4: Scope of the Aichi Targets (summarized)

1. Promoting awareness of the values of biodiversity and the steps they can take to conserve and use it sustainably
2. Integration of biodiversity values into development planning
3. Elimination of perverse subsidies that harm biodiversity and use of positive incentives
4. Planning for sustainable production and consumption
5. Rate of loss of habitat halved by 2020 and degradation and fragmentation significantly reduced
6. Maintaining resource use within ecological limits
7. *Sustainable management of fish and invertebrate stocks*
8. *Areas under agriculture, aquaculture and forestry are sustainably managed ensuring conservation of biodiversity*
9. *Control and management of invasive alien species*
10. Protection of vulnerable ecosystems
11. Protected areas (17% of terrestrial and inland waters; 10% of coastal and marine)
12. Conservation of threatened species
13. *Safeguarding genetic diversity in cultivated, domesticated species and wild relatives, or other valued species*
14. Restoration and safeguarding of ecosystem services taking account of the needs of women, indigenous and local communities and the poor and vulnerable
15. Enhanced and restored ecosystem resilience and contribution to carbon stocks
16. Implementation of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits
17. National biodiversity strategies and action plans
18. *Respect for traditional knowledge, innovations, practices, and sustainable use*
19. Science and technology relating to biodiversity
20. Increased finance for implementation of the strategy

While all are indirectly relevant, targets 7, 8, 9, 13 and 18 (*italicised*) are of particular relevance to aquaculture development.

Source: [The Aichi Targets: https://www.cbd.int/sp/targets/default.shtml](https://www.cbd.int/sp/targets/default.shtml) (CBD, 2011)

## 2.6 Other important conventions with relevance to SDGs

The [International Treaty on Plant Genetic Resources for Food and Agriculture](#) (ITPGRFA; FAO, 2009a) is a binding agreement specifically dealing with the sustainable management of plant genetic resources for food and agriculture (PGRFAs). ITPGRFA will be a key mechanism for leveraging attainment of SDG Goals 2 and 15. [UN-Habitat](#) is relevant for the implementation of SDGs concerned with urban development and sustainability

(especially SDG 11). Its mission is to promote socially and environmentally sustainable human settlements development and the achievement of adequate shelter for all.

### 3. THE 2030 AGENDA – AN INTRODUCTION

#### 3.1 Overview

The 2030 Agenda<sup>6</sup> provides a high-level policy and monitoring framework designed to stimulate and coordinate the activities of national governments, the UN and other intergovernmental organizations, civil society organizations and other institutions - in pursuit of sustainable development, with the specific aim of eradicating extreme poverty and hunger.

The Declaration commits the (194) participant countries to “*achieving sustainable development in its three dimensions – economic, social and environmental – in a balanced and integrated manner*”. Country representatives resolved furthermore - between now and 2030 – to:

- “end poverty and hunger everywhere;
- combat inequalities within and among countries;
- build peaceful, just and inclusive societies;
- protect human rights and promote gender equality and the empowerment of women and girls;
- ensure the lasting protection and sustainable management of the planet and its natural resources”.

They also resolve “*to create conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all, taking into account different levels of national development and capacities*”.

#### Box 5. Aspirations of the 2030 Agenda: *The 5 Ps*

**People:** We are determined to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment.

**Planet:** We are determined to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations.

**Prosperity:** We are determined to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.

**Peace:** We are determined to foster peaceful, just and inclusive societies which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development.

**Partnership:** We are determined to mobilize the means required to implement this Agenda through a revitalised Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focussed in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people

Source: Preamble to The 2030 Agenda: [UN. 2015a. Transforming our world: The 2030 Agenda for Sustainable Development.](https://www.un.org/sustainabledevelopment/2015/transformingourworld/)

The SDGs focus on the 5 Ps: people, planet, prosperity, peace and partnership (Box 5). They strongly emphasise the interdependence of the various goals, targets and approaches and the need to implement them in an integrated and coordinated manner.

Agenda 2030 is far broader in scope than previous articulations (Agenda 21 and the MDGs) especially as regards social and economic issues, human rights and access, equity and gender issues. On the other hand, several significant elements that characterized previous agendas are missing or modified. There is less direct emphasis on *planning*, although this is implicit in some targets and explicit in some indicators. The *precautionary approach* is not mentioned, although there remains a specific target relating to best available science (14.a). Nor is environmental assessment referred to. This is likely because the focus of Agenda 2030 is on outcomes rather than processes, recognizing the enormous diversity of development contexts throughout the globe, and the diversity of possible approaches to achieving balanced social, economic and environmental objectives.

<sup>6</sup> UN, 2015a. Transforming our world: the 2030 Agenda for Sustainable Development. <https://sustainabledevelopment.un.org/post2015/transformingourworld>

**Figure 1: The SDGs in summary.**



A full list of SDGs and associated targets can be found at [UN. 2015a. Transforming our world: The 2030 Agenda for Sustainable Development](https://www.un.org/sustainabledevelopment/)<sup>7</sup>.

### 3.2 Oversight, review and follow up

A [High Level Political Forum on Sustainable Development](https://www.un.org/sustainabledevelopment/) (HLPF) convened under the auspices of the [UN Economic and Social Council](https://www.un.org/economicandsocialcouncil/) (ECOSOC) has responsibility for overseeing implementation, monitoring and review of the 2030 Agenda. The HLPF encourages member states to conduct regular and inclusive reviews of progress at the national and sub-national levels. These voluntary national reviews (VNRs) feed into higher level assessments and reviews by HLPF, meeting under the auspices of the UN Economic and Social Council. The VNRs “aim to facilitate the sharing of experiences, including successes, challenges and lessons learned, with a view to accelerating the implementation of the 2030 Agenda”.

The UN Secretary General (SG) provides the HLPF with the annual Report on Progress, which charts global progress against SDG indicators, compiled with the support of the Custodian Agencies. The [UN Statistical Commission](https://www.un.org/development/desa/destat/) (UNSC) is mandated to adopt the SDG indicators and periodically review those under development, as proposed by the Inter-agency Expert Group on SDG indicators ([IAEG-SDGs](https://www.un.org/development/desa/destat/)<sup>8</sup>) which has developed indicators to measure progress in achieving the 169 targets (IAEG-SDGs, 2016). Also of note is the [High-level Group](https://www.un.org/development/desa/destat/) for Partnership, Coordination and Capacity-Building for Statistics for the 2030 Agenda (HLG) which aims to establish a global partnership to mobilize resources and build capacity for sustainable development data. It also reports annually to the UNSC.

FAO has specific responsibility for 21 indicators, relating to 17 targets and 6 goals – with the main emphasis - as would be expected – on Goal 2: *End hunger, achieve food security and improved nutrition and promote sustainable agriculture*. FAO is a key partner in relation to a further 4 indicators. A full list is presented at Annex 1.

The annual [ECOSOC Forum on Financing for Development follow-up](https://www.un.org/economicandsocialcouncil/) (FfDF) reviews the identified financial and non-financial Means of Implementation for the SDGs and reports to HLPF. It is supported by the [Inter-Agency Task Force on the follow up-to Financing for Development](https://www.un.org/development/desa/destat/) (IATF on FfD). FfD is also complemented

<sup>7</sup> [UN. 2015a. Transforming our world: The 2030 Agenda for Sustainable Development.](https://www.un.org/sustainabledevelopment/)

[www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E;](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E;)  
<http://daccess-ods.un.org/access.nsf/GetFile?OpenAgent&DS=A/RES/70/1&Lang=E&Type=DOC>

<sup>8</sup> IAEG-SDGs. 2016. Report of the Inter-agency and Expert Group on Sustainable Development Goal Indicators. Note by the Secretary-General. E/CN.3/2017/2. <https://unstats.un.org/unsd/statcom/48th-session/documents/2017-2-IAEG-SDGs-E.pdf>; <https://unstats.un.org/sdgs/indicators/indicators-list/>

by the Technology Facilitation mechanism, aiming at mobilizing the know-how, technical capacity and science needed by developing countries to sustain their own sustainable development.

The SDGs are country-owned, and Member countries are free to establish priorities and mechanisms for implementation. However, the SDGs require strong policy convergence and consistency, so that many countries are establishing coordination mechanisms at national level such as National Councils for Sustainable Development, and there is a [global network](#) of such bodies.

### 3.3 Key institutions and approaches to implementation

The Addis Ababa Action Agenda (described above) is the key tool or framework to coordinate and mobilize financial and non-financial instruments to implement the 2030 Agenda. Other institutions, approaches and tools likely to play an important role in implementation with respect to agriculture, aquaculture and food are discussed below.

#### *Key institutions with potential to facilitate or coordinate SDG delivery in respect of food and agriculture*

A complex network of institutions is likely to play a role in the implementation of the SDGs, and the 2030 Agenda calls on all stakeholders to help implement the agenda in a spirit of partnership. The 2030 Declaration recognizes the importance of ensuring consistency at all levels, acknowledges the importance of already existing sectoral platforms and alliances, and encourages them to provide inputs to HLPF. Those of particular relevance to the work of FAO (i.e. food and agriculture, and in particular aquaculture) are listed in Annex 2, although it should be emphasised that such a list cannot be comprehensive. It is significant that the FAO Committee on Fisheries (including its two Sub-Committees on Fish Trade and Aquaculture), is one of the bodies encouraged to provide inputs to the HLPF.

High level international organizations and fora of particular relevance include the [Committee on World Food Security](#), led by a joint Rome-based Agency secretariat; the [High Level Panel of Experts on Food Security and Nutrition](#); the [UN Standing Committee on Nutrition](#); the [UN High Level Committee on Programmes](#); the [UN Development Group](#) and the [UN Environmental Management Group](#); [UN-Oceans](#) and [UN-Water](#); the [Global Facility for Disaster Reduction and Recovery](#); The [Green Climate Fund](#); The [Global Forum on Agricultural Research](#); the [Global Soil Partnership](#); and the [International Partnership for Cooperation on Child Labour in Agriculture](#).

Relating more directly to aquaculture and/or seafood, the [Global Partnership for Climate, Fisheries and Aquaculture](#) is a voluntary initiative among more than 20 international organizations with a common concern for climate change interactions with global waters and living resources and their social and economic consequences. Of particular relevance to delivery of SDG 2, 13, and 14. The [Global Sustainable Seafood Initiative](#) is a platform and partnership of seafood companies, NGOs, experts, governmental and intergovernmental organizations working towards more sustainable seafood. It is primarily concerned with benchmarking for seafood certification systems based on the CCRF. Standards frameworks and certification systems are likely to be important tools in the delivery of SDGs in the aquaculture sector.

Within FAO itself the [Committee on Fisheries](#) (COFI) and the [Fisheries and Aquaculture Department](#) are likely to play key roles. COFI has already recognized the importance of the SDGs at recent meetings.<sup>9</sup> The COFI [Sub-Committee on Aquaculture](#) (COFI:AQ) is seeking to strengthen its strategic role in advancing aquaculture development.<sup>10</sup> The [COFI Sub-Committee on Fish Trade](#) (SC:FT) contributes on markets, trade, food safety and quality, and on sustainable value chains. The FAO Fisheries and Aquaculture Department highlighted the importance of The 2030 Agenda in the outlook section of its biannual [State of the World Fisheries and Aquaculture](#) (FAO, 2016a). The [Commission on Genetic Resources for Food and Agriculture](#), and the COFI

<sup>9</sup> FAO COFI. 2016a. Agenda 2030, Sustainable Development Goals and Fisheries and Aquaculture. COFI/2016/Inf.20 [www.fao.org/3/a-mq652e.pdf](http://www.fao.org/3/a-mq652e.pdf)

<sup>10</sup> FAO COFI. 2015a. Towards Establishing a Strategic Framework for Strengthening the Role of the Sub-Committee on Aquaculture in Advancing Aquaculture Development. COFI:AQ/VIII/2015/5 [www.fao.org/cofi/30794-0af71617879ce00f2498ea15ff2260fbb.pdf](http://www.fao.org/cofi/30794-0af71617879ce00f2498ea15ff2260fbb.pdf)

Advisory Working Group on Aquatic Genetic Resources and Technologies are also likely to play a significant role, especially with respect to SDG Targets 2.5 and 15.6.

At regional level aquaculture network organisations such as [Network of Aquaculture Centres in Asia](#) (NACA), the [Aquaculture Network of the Americas](#) (RAA), the [Micronesian Association for Sustainable Aquaculture](#) (MASA) and [Aquaculture Network for Africa](#) (ANAF); as well as some of the regional fishery bodies such as the [Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean](#), and the [Committee for Inland Fisheries and Aquaculture of Africa](#) will play a key facilitating and coordinating role. Multi-sector organisations such as New Partnership for Africa's Development will also be relevant.

At national level, the UN system's Country Teams should play a key role in facilitating and coordinating actions, working mainly with relevant government departments, agencies and research organizations, as well as producer and trader organisations.

### ***Concepts, agendas and approaches that may help drive and facilitate implementation of SDGs***

A range of concepts, frameworks and agendas address sustainable food production. The Committee on World Food Security developed a set of [Principles for Responsible Investment in Agriculture and Food Systems](#) (RAI Principles), updated in 2014 and broadly consistent with the SDGs (CFS, 2014). [Save and Grow](#) is an FAO sponsored paradigm developed in 2011 for intensive crop production that enhances both productivity and sustainability. [Climate Smart Agriculture](#) is FAO's strategic approach to developing the technical, policy and investment conditions to address the interlinked challenges of sustainably increasing food production, achieving food security and development targets, and addressing the challenges of climate change. Closely related are [Energy Smart Food for People and Climate](#) – elaborated by FAO in a 2011 issue paper, and [FAO-Adapt](#) – an FAO-wide framework programme on climate change adaptation. The [Global Agenda for Sustainable Livestock](#) (GASL) is a multi-stakeholder partnership committed to the sustainable development of the livestock sector and more specifically the delivery of relevant SDGs. The Agenda seeks to transform policy dialogue into practice change. FAO has recently produced some SDG specific guidance including : [Food and Agriculture: Key to achieving the 2030 Agenda for Sustainable Development](#) (FAO, 2016b); [How to Place Food and Agriculture in the SDGs on the National Planning Menu: A 10-Point Guide](#) (FAO, 2016c) and [FAO and the SDGs. Indicators – Measuring up to the 2030 Agenda for Sustainable Development](#) (FAO, 2017a).

Several concepts and agendas address the underlying issues of land, soil and water management, including [Sustainable Land Management \(SLM\)](#), elaborated at the Rio Summit in 1992 and promoted by FAO (FAO, 2015c), which emphasises the need to maintain long term productivity of land and associated resources (soils, water, animals and plants); [Sustainable Soil Management](#) (guidelines developed by FAO and the Global Soil Partnership; FAO, 2016d); and [Sustainable Forest Management](#) with the broad aim of maintaining and enhancing the economic, social and environmental values of all types of forests.

Food security and nutrition is addressed in the RAI Principles noted above, and in the [Framework for Action for Food Security and Nutrition in Protracted Crises \(CFS-FFA\)](#) – both sponsored by Committee on World Food Security.

The [Agenda for Humanity](#) outlines the changes that are needed to alleviate suffering, reduce risk and lessen vulnerability on a global scale. Global leaders and all humanitarian actors are called upon to act on five core responsibilities:

- Political leadership to prevent and end conflicts;
- Uphold the norms that safeguard humanity;
- Leave No One Behind;
- Change people's lives: from delivering aid to ending need;
- Invest in Humanity.

The [ILO Decent Work Agenda](#) aims to achieve fair globalization and poverty reduction. It comprises 4 pillars: employment creation, social protection, rights at work, and social dialogue; with gender equality as a cross-cutting theme. It is key to delivery of SDG 8 and several other goals and targets. This Agenda is being taken

forward in relation to aquaculture through (*inter alia*) the multi-stakeholder [Vigo Dialogue on Decent Work in Fisheries and Aquaculture](#) and has been discussed by the COFI Sub-Committee on Aquaculture.<sup>11</sup>

Rights and tenure feature strongly in the SDGs, and are addressed in the [Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security](#) – endorsed by the Committee on World Food Security in association with FAO in 2012.

Relating more specifically to aquaculture, the [Code of Conduct for Responsible Fisheries](#), the [Ecosystem Approach to Aquaculture \(FAO, 2010a\)](#), the [Blue Growth Initiative](#), and the [Bangkok Declaration](#) (FAO/NACA, 2001) are all closely aligned to many of the SDGs and associated targets, and offer significant opportunities for raising the profile of sustainable aquaculture development. A variety of product tracing and certification schemes are also likely to be important. These approaches are discussed in more detail in section 6.

### **Supporting tools and databases**

There are literally hundreds of tools and resources designed to facilitate sustainable development and assess/monitor progress in all its many dimensions. A selection of “higher level” or FAO sponsored tools are listed in Box 6 and described in more detail in Annex 2.

#### **Box 6: Some key data resources and tools for implementing the 2030 Agenda**

- State of World Fisheries and Aquaculture (FAO)
- Biannual Survey on Progress in Implementation of the Code of Conduct for Responsible Fisheries, reported to the Committee on Fisheries and its Sub-Committees on Fish Trade and Aquaculture
- Agricultural Market Information System AMIS (FAO)
- Domestic Animal Diversity Information System DAD-IS (coordinated by FAO)
- Gender and Land Rights database (FAO)
- Food Insecurity Experience Scale (FAO)
- Legal Assessment Tool (FAO)
- (World) Food Price Monitoring and Analysis (FAO)
- Global Information and Early Warning System on Food and Agriculture (FAO)
- Global Partnership for Sustainable Development Data
- Global Strategy to Improve Agricultural Statistics (FAO)
- Global Survey Hub (FAO)
- International System for Agricultural Science and Technology
- Integrated Food Security Phase Classification
- Living Standards Measurement Study
- State of the World Report on Aquatic Genetic Resources
- FAO Contributions to UN Secretary General’s SDG Progress Reports

## **4. RELEVANCE OF THE 2030 AGENDA TO THE WORK OF FAO**

In many ways, this new and comprehensive articulation of and commitment to sustainable development chimes far more closely with the aims and remit of FAO than its predecessors, and its implementation represents an important obligation and opportunity for FAO. FAO’s high level vision:

*“a world free from hunger and malnutrition, where food and agriculture contribute to improving the living standards of all, especially the poorest, in an economically, socially and environmentally sustainable manner”*

is closely aligned with the 2030 Agenda Declaration and the SDGs.

<sup>11</sup> FAO COFI. 2015b. Improving livelihoods through decent employment in aquaculture. COFI:AQ/VIII/2015/9 [www.fao.org/cofi/30797-0bb019f2e2a73b99f0bbe0010ca41ec41.pdf](http://www.fao.org/cofi/30797-0bb019f2e2a73b99f0bbe0010ca41ec41.pdf)

#### 4.1 Interlinkage and integration

The interlinkages and integrated nature of the Sustainable Development Goals are of crucial importance in ensuring that the purpose of the new Agenda is realised. This represents a challenge and an opportunity for FAO. On the one hand FAO and other development organisations have long understood the need for integration across sub-sectors in promoting sustainable rural development. On the other hand, most development initiatives are premised on particular development agendas and perspectives (economic; environmental; technical; social; climatic) and integration is not always welcome or feasible.

FAO has a particular strength in this regard, in so far as its remit is relatively broad, the rationale behind its activities is widely accepted, and it has access to a very diverse pool of skills and experience.

#### Box 7: FAO Strategic Objectives

1. Contribute to the eradication of hunger, food insecurity and malnutrition
2. Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner
3. Reduce rural poverty
4. Enable more inclusive and efficient agricultural and food systems at local, national and international levels
5. Increase the resilience of livelihoods to threats and crises

*And functional objective:*

6. Provision of technical quality, knowledge and services

**Cross cutting themes:** Gender and governance

*Source:* FAO.2016e. Reviewed Strategic Framework and Outline of the Medium Term Plan 2018–21.

#### *Correspondence between SDG goals and FAO Strategic Framework*

The current FAO Strategic Framework was set out in 2009<sup>12</sup> and subsequently updated in light of the global developments, trends and challenges in 2013<sup>13</sup> and 2016.<sup>14</sup> The latter will be used here. The framework now takes explicit account of the SDGs by identifying and using exclusively the SDG targets and indicators that relate to each Strategic Objective (SO). This has resulted in a new set of strategic level indicators that will be monitored annually to report trends and progress toward targets. Furthermore, at outcome level, some indicators or measures have been replaced with SDG indicators.

FAO's five strategic objectives (Box 7) relating to food security and nutrition, poverty alleviation in rural areas, resilient livelihoods, and sustainable management and efficient use of natural resources are featured across the SDGs, and lie at the heart of FAO's work in practice.<sup>15</sup> This alignment and these opportunities have been recognised in several recent FAO publications.<sup>16</sup> For example, FAO's publication *Food and Agriculture: Achieving the 2030 Agenda* sums up the relationship between the SDGs and its strategic framework: "both the SDGs and FAO's strategic framework are geared towards tackling the root causes of poverty and hunger, building a fairer society and leaving no one behind".

The SDGs are listed in table 1, with an indication of the relevance/correspondence of the current strategic objectives of FAO. This is an independent assessment based on first principles, cross checked against FAO's own analysis as presented in the revised strategy and planning document (FAO, 2016e).

<sup>12</sup> FAO, 2009b. Strategic Framework 2010-2019. C2009/3 [www.fao.org/docrep/meeting/029/k5864e01.pdf](http://www.fao.org/docrep/meeting/029/k5864e01.pdf)

<sup>13</sup> FAO, 2013a. Reviewed Strategic Framework C 2013/7 [www.fao.org/docrep/meeting/027/mg015e.pdf](http://www.fao.org/docrep/meeting/027/mg015e.pdf)

<sup>14</sup> FAO, 2016e. Reviewed Strategic Framework and Outline of the Medium Term Plan 2018-21. CL 155/3 [www.fao.org/3/a-mr830e.pdf](http://www.fao.org/3/a-mr830e.pdf)

<sup>15</sup> FAO COFI, 2016. FAO's Programme of Work in Fisheries and Aquaculture under the FAO Strategic Framework. COFI/2016/9 [www.fao.org/3/a-mq949e.pdf](http://www.fao.org/3/a-mq949e.pdf)

<sup>16</sup> FAO, 2016c. [How To Place Food and Agriculture in the SDGs on the National Planning Menu: A 10-Point Guide](#); FAO, 2017a. [FAO and the SDGs. Indicators – Measuring up to the 2030 Agenda for Sustainable Development](#); FAO, 2016a. [The State of World Fisheries and Aquaculture 2016](#); FAO COFI, 2016a. [Agenda 2030. Sustainable Development Goals and Fisheries and Aquaculture: COFI/2016/Inf.20](#); FAO, 2016b. [Food and agriculture key to achieving the 2030 Agenda for sustainable development](#); FAO, 2015a. [FAO and the 17 Sustainable Development Goals](#).

**Table 1: Correspondence between FAO Strategic Objectives and SDGs**

	Sustainable Development Goals (summarized, text shortened)	Relevance to FAO's Five Strategic Objectives and Objective 6
1	End poverty in all its forms everywhere	3,5
2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	1,2,3,4,5
3	Ensure healthy lives and promote wellbeing for all at all ages	1,2
4	Ensure inclusive and quality education for all and promote lifelong learning	6
5	Achieve gender equality and empower women and girls	Cross cutting theme
6	Ensure availability and sustainable management of water and sanitation for all	2
7	Ensure access to affordable, reliable, sustainable and modern energy for all	2
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	3,4,5
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	2,4,6
10	Reduce inequality within and among countries	3,4
11	Make cities and human settlements inclusive, safe, resilient and sustainable	4,5
12	Ensure sustainable consumption and production patterns	2, 4
13	Take urgent action to combat climate change and its impacts	1,2,4,5
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	1,2,4
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	1,2,4
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	4
17	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	4

This shows that FAO has a role in delivering almost all the SDGs. Only with respect to SDG 7: *Ensure access to affordable, reliable, sustainable and modern energy for all* is FAO's potential contribution more limited. Furthermore, the core values implicit throughout the 2030 Agenda: eradication of hunger and poverty; promotion/facilitation of opportunity, equality, inclusiveness, education, wellbeing, sustainability, peace and justice; and partnership in delivery – all lie at the heart of FAO's remit and philosophy.

FAO's cross-cutting themes - climate change; gender, governance and nutrition – reinforce delivery in relation to SDGs 13, 5, and 16/17 respectively.

The extent of the overlap can be summarized by examining the incidence of the words 'agriculture', 'food', 'farm', 'forest', and 'fish' in the SDGs, its targets and indicators. These words occur in two goals, 16 targets, and 19 indicators. Furthermore, "**what FAO does**"<sup>17</sup> is directly supportive of many of the SDG goals and targets, and in particular those related to food and agriculture:

- Provides evidence-base and policy advice to build sustainable agriculture and food systems
- Promotes guidelines, standards, good practices
- Facilitates policy dialogue
- Supports countries in designing and implementing strategies and programmes
- Reinforces the capacity of actors and strengthening the institutional environment

<sup>17</sup> FAO, 2016c. How to Place Food and Agriculture in the SDGs on the National Planning Menu: A 10-Point Guide. [www.fao.org/3/a-i6111e.pdf](http://www.fao.org/3/a-i6111e.pdf)

- Mobilizes resources and investments
- Advances data generation at global and country level
- Builds partnerships

The overlap between FAO's international role and delivery of the SDGs is reinforced through the explicit responsibility given to FAO to be the "custodian" of 21 SDG indicators and a contributor to six more. While this does not imply responsibility for achieving the targets (this is for individual countries) it does imply a major role for FAO in supporting countries in measuring progress, and represents an important opportunity to take a leadership role in facilitating implementation of the 2030 Agenda in these core areas. Annex 1 provides the full text for the FAO "custodian" indicators relating to:

- nutrition;
- food security;
- agricultural productivity;
- agricultural income;
- sustainable agriculture;
- conservation of agricultural genetic diversity and rare breeds;
- government spending on agriculture;
- food price stability;
- tenure rights (including gender dimensions);
- water use efficiency and water stress;
- food waste;
- fish stocks within sustainable limits;
- IUU fishing;
- access rights for small scale fishers;
- forest cover and mountain green cover;
- sustainable forest management; and
- land degradation.

## 4.2 FAO guidance on the SDGs

The SDGs have been widely discussed by FAO's governing bodies including FAO Conference and Regional Conferences. These generated basic guidance on how to incorporate SDGs into FAO's work, and identified priorities and mechanisms for accounting on results.

FAO has highlighted the importance of the SDGs to its work in several documents, including:

- [FAO and the Sustainable Development Goals \(FAO, 2016f\)](#);
- [Food and Agriculture: Key to achieving the 17 SDGs \(FAO, 2016b\)](#);
- [10 Point Guide: How to place food and agriculture in the SDGs on the national planning menu](#);
- [Food and Agriculture in the 2030 Agenda \(FAO, 2016c\)](#);
- [FAO and the SDGs. Indicators – Measuring up to the 2030 Agenda for Sustainable Development \(FAO, 2017a\)](#).

It has also addressed many of the 2030 Agenda priorities in its 2014 ["Building a Common Vision for sustainable agriculture – principles and approaches"](#) (FAO, 2014; Box 8).

### Box 8. The Five Principles of the Common Vision for Sustainable Food and Agriculture

The Common Vision for sustainable food and agriculture considers the following five principles as a basis for the policy dialogue and governance arrangements needed to identify sustainable development pathways across the SDGs, across sectors and along related value chains:

- 1) **Improving efficiency in the use of resources.** This includes improved genetic material, improved agricultural technologies and practices, integrated management of pests and soil fertility, precision irrigation, improved animal feeding and health control, reduced loss and waste.
- 2) **Conserving, protecting and enhancing natural ecosystems.** This includes practices for the conservation of plant and animal genetic resources, restoration and conservation of soils, protection against water pollution, reduced carbon emission intensity, and incentives for environmental services, such as the protection of pollinators and carbon sequestration.
- 3) **Protecting and improving rural livelihoods, equity and social well-being.** Of critical importance is the extent to which rural people, in particular small-scale family farmers, youth and women, have secure and equitable access to knowledge, services, markets and resources, including land and water, control over their livelihood through decent work opportunities, and access to diverse and nutritious food.
- 4) **Enhancing the resilience of people, communities and ecosystems.** This includes contingency planning for droughts, floods or pest outbreaks and the adoption of more diversified and resilient production systems, associated with effective safety nets.
- 5) **Promoting responsible and effective governance mechanisms across natural and human systems.** This includes effective policies and strategies that are consistent across sectors, alignment of legal frameworks and investments, and strengthening of capacities of public institutions and other relevant stakeholders at all levels. It is based on broad stakeholder consultation, strengthening partnerships, and the application of mediation and conflict resolution mechanisms that are needed to build consensus around sustainable development objectives.

Source: FAO. 2014. [Building a common vision for sustainable food and agriculture – principles and approaches](http://www.fao.org/3/a-i3940e.pdf) (www.fao.org/3/a-i3940e.pdf); A [summary](http://www.fao.org/3/a-i3941e.pdf) is found in: [www.fao.org/3/a-i3941e.pdf](http://www.fao.org/3/a-i3941e.pdf)

The following attempts to summarize the key points made in these various documents:

- The new goals will be relevant to developing and developed countries (“universal” application).
- Developing the SDGs has been a member-driven, inclusive process; meaning that governments are likely to take much greater ownership of the SDGs, which will be translated into new development objectives and policies for each country.
- The greater influence of middle-income countries in the SDG process is reflected in greater emphasis on industrialization, economic growth and sustainable cities than was the case for Rio or the MDGs.
- The SDGs are interlinked, and a guiding principle is that any implementation initiatives must be coordinated and integrated, recognising where necessary the trade-offs that may have to be made.
- The social, economic and environmental dimensions must all be taken into account in implementing the Agenda.
- There is increased emphasis on sustainable management, improved efficiency of resource use, sustainable consumption, and valuing /rewarding sustainable production systems.
- Food production is central to our relationship with the planet, many current practices are unsustainable, and both sustainable agriculture and sustainable resource use are fundamental to a healthy planet.
- Addressing hunger and food security through sustainable agriculture is fundamental to SDG 2; features prominently in the targets associated with SDG14 (marine resources) and 15 (terrestrial resources and biodiversity); and underpins several other goals and targets. It can also contribute to reducing and mitigating climate change.
- The SDGs recognize the challenge of poor nutrition and obesity as well as malnutrition.
- Zero hunger is achievable. Increasing numbers of international and regional organisations and governments are setting zero-hunger as a realistic target over the next 10-15 years.

- Tackling hunger and malnutrition is not only about boosting food production, but also to do with increasing incomes, creating resilient food systems and strengthening markets so that people can access safe and nutritious food even if a crisis prevents them from growing enough themselves.
- Food security is not just about food production, but encompasses food trade, transportation, processing, storage and marketing. Combating food waste (and resource use waste) at all points in the supply chain will be a key tool in promoting food security.
- There is increased focus on resilience – in the face of market uncertainty, weather, and climate change.
- Good governance is key to both poverty alleviation and sustainable resource management.
- There is increased focus on those most in need (rural poor; particularly smallholder and family farmers).
- Means of implementation includes market access, technology transfer, capacity development and policy support – reinforced by a robust global monitoring, review and follow up process.
- There is continued strong focus on partnership, inclusion and participation.
- Financing implementation will be from multiple sources. It has been estimated FAO/IFAD/WFP that achieving zero hunger by 2030 will require funding for social protection and investments of around USD265 billion or 0.3 percent of global GDP – and political will. Spending on social protection (e.g. school food and nutrition, cash transfer, health care) is seen as a key element in facilitating delivery of poverty related targets.
- FAO’s Strategic Framework is broadly aligned with the SDGs. The SDGs are more closely aligned with FAO’s scope, aspiration and remit than the MDGs and present correspondingly greater opportunities for the organization. This is reinforced through FAO custodian role in relation to many SDG indicators.
- FAO’s priorities in delivering the 2030 Agenda are to end poverty, hunger and malnutrition; to enable sustainable development in agriculture, fisheries and forestry; and to combat and adapt to climate change.
- FAO has substantial historic expertise at engagement and stakeholder participation - from government to communities – an approach central to the SDGs means of implementation.
- FAO is working with governments and other key actors in food security and sustainable development in projects and programmes across the globe, and has huge experience in supporting and facilitating sustainable development.

On a practical level, the “10-point guide” (FAO, 2016c) elaborates on the following 10 points – targeted primarily at FAO staff in country offices:

1. Know your SDGs
2. Raise awareness of FAO’s role
3. Identify partners in the field
4. Help translate SDGs into national plans – especially those related to food and agriculture
5. Take a leading role amongst UN agencies (e.g. preparing UNDAFs<sup>18</sup>; [UNDG, 2017a](#))
6. Meet with ministers responsible for SDGs planning, implementation and monitoring
7. Help national statistical capacity
8. Create ownership
9. Keep your Country Programming Framework relevant
10. Coordinate with regional and sub-regional offices and with Headquarters

### 4.3 The relevance of the SDGs to aquaculture development

A broad summary of the relevance of the SDGs to aquaculture development is presented in Table 2.

SDGs 1 (end poverty); 2 (end hunger); 8 (growth, employment); 12 (sustainable production and consumption); 13 (climate change); 14 (conservation and sustainable use of marine resources) are all highly relevant to aquaculture development; but all the goals are relevant in one way or another and should influence the work of FAO, its constituency and its partners, in promoting sustainable aquaculture development. The nature and extent of aquaculture development should be influenced strongly by the SDGs; equally, aquaculture, when developed

<sup>18</sup> The United Nations Development Assistance Framework (UNDAF) is a programme document between a government and the United Nations Country Team (UNCT) that describes the collective actions and strategies of the United Nations to the achievement of national development.

appropriately, can contribute significantly to the achievement of many SDGs. These opportunities are explored on a more practical level in the following sections.

**Table 2: Relevance of Sustainable Development Goals to aquaculture development**

	<b>Sustainable Development Goals (text shortened)</b>	<b>Relevance to aquaculture</b>
1	End poverty in all its forms everywhere	**
2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	***
3	Ensure healthy lives and promote wellbeing for all at all ages	*
4	Ensure inclusive and quality education for all and promote lifelong learning	*
5	Achieve gender equality and empower women and girls	**
6	Ensure availability and sustainable management of water and sanitation for all	**
7	Ensure access to affordable, reliable, sustainable and modern energy for all	**
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	***
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	**
10	Reduce inequality within and among countries	*
11	Make cities and human settlements inclusive, safe, resilient and sustainable	*
12	Ensure sustainable consumption and production patterns	***
13	Take urgent action to combat climate change and its impacts	**
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	***
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	**
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	*
17	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	**

*Note:* stronger green indicates greater relevance to aquaculture or greater potential contribution from aquaculture.

## 5. IMPLEMENTING THE SDGS AND AICHI TARGETS IN AQUACULTURE

### 5.1 Overview of relevant targets in the 2030 Agenda

The targets which have most relevance to aquaculture development are listed in Box 9. The number and scope of those which are relevant is daunting; indeed, it is arguable that almost all the targets are relevant in one way or another. For this reason, some of the key issues highlighted in the Agenda that also have particular relevance to aquaculture have been picked out and are presented in 7.2 below.

### Box 9: SDG targets of particular relevance to aquaculture development planning

1.1 By 2030, **eradicate extreme poverty** for all people everywhere, currently measured as people living on less than US\$1.25 a day

1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions

1.b Create **sound policy frameworks** at the national, regional and international levels, based on **pro-poor and gender-sensitive development strategies**, to support accelerated investment in poverty eradication actions

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have **equal rights to economic resources**, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

1.5 By 2030, build the **resilience** of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, **social and environmental shocks and disasters**

2.1 By 2030, **end hunger** and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round

2.3 By 2030, **double the agricultural productivity and incomes of small-scale food producers**, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through **secure and equal access to land, other productive resources and inputs**, knowledge, financial services, markets and opportunities for value addition and non-farm employment

2.4 By 2030, ensure **sustainable food production systems and implement resilient agricultural practices** that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

2.5 By 2020, maintain the **genetic diversity** of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through **soundly managed and diversified seed and plant banks** at the national, regional and international levels, and **promote access to and fair and equitable sharing of benefits** arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed

2.a Increase **investment**, including through enhanced international cooperation, **in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks** in order to enhance agricultural productive capacity in developing countries, in particular least developed countries

2.b **Correct and prevent trade restrictions and distortions in world agricultural markets**, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round

2.c Adopt measures to ensure the **proper functioning of food commodity markets** and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

3.9 By 2030, substantially **reduce the number of deaths and illnesses from hazardous chemicals** and air, water and soil pollution and contamination

4.4 By 2030, **substantially increase the number of youth and adults who have relevant skills**, including technical and vocational skills, for employment, decent jobs and entrepreneurship

5.1 End all forms of **discrimination** against all women and girls everywhere

5.a Undertake reforms to **give women equal rights to economic resources**, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

6.3 By 2030, **improve water quality** by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

6.4 By 2030, substantially increase **water-use efficiency** across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity

8.2 Achieve higher levels of **economic productivity** through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

8.3 Promote development-oriented policies that support **productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises**, including through access to financial services

8.5 By 2030, achieve full and productive **employment and decent work** for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

8.7 Take immediate and effective measures to **eradicate forced labour**, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of **child labour**, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms

8.8 Protect labour rights and promote **safe and secure working environments for all workers**, including migrant workers, in particular women migrants, and those in precarious employment

9.b **Support domestic technology development, research and innovation in developing countries**, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities

11.a Support **positive economic, social and environmental links between urban, peri-urban and rural areas** by strengthening national and regional development planning

12.2 By 2030, achieve the **sustainable management and efficient use of natural resources**

12.4 By 2020, achieve the **environmentally sound management of chemicals and all wastes** throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

12.5 By 2030, substantially **reduce waste generation** through prevention, reduction, recycling and reuse

**13.2 Integrate climate change measures into national policies, strategies and planning**

13.b Promote mechanisms for raising capacity for **effective climate change-related planning and management in least developed countries and small island developing States**, including focusing on women, youth and local and marginalized communities

14.1 By 2025, prevent and significantly reduce **marine pollution of all kinds**, in particular from land-based activities, including marine debris and nutrient pollution

14.2 By 2020, **sustainably manage and protect marine and coastal ecosystems** to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

14.5 By 2020, **conserve at least 10 per cent of coastal and marine areas**, consistent with national and international law and based on the best available scientific information

14.7 By 2030, increase the **economic benefits** to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, **aquaculture** and tourism

14.b Provide **access for small-scale artisanal fishers to marine resources and markets**

14.c Enhance the conservation and sustainable use of oceans and their resources by **implementing international law** as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of “The future we want”

15.1 By 2020, ensure the conservation, restoration and sustainable use of **terrestrial and inland freshwater ecosystems** and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

15.6 Promote fair and **equitable sharing of the benefits arising from the utilization of genetic resources** and promote appropriate access to such resources, as internationally agreed

15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products

15.8 By 2020, introduce measures to **prevent the introduction and significantly reduce the impact of invasive alien species** on land and water ecosystems and control or eradicate the priority species

15.9 By 2020, **integrate ecosystem and biodiversity values into national and local planning**, development processes, poverty reduction strategies and accounts

16.10 Ensure **public access to information and protect fundamental freedoms**, in accordance with national legislation and international agreements

17.9 Enhance international support for implementing effective and targeted **capacity-building in developing countries** to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation

17.13 **Enhance global macroeconomic stability**, including through policy coordination and policy coherence

17.14 Enhance **policy coherence for sustainable development**

17.15 **Respect each country's policy space and leadership** to establish and implement policies for poverty eradication and sustainable development.

Similarly the **Aichi Targets** most relevant to aquaculture development are listed in Box 10

**Box 10: Convention on Biological Diversity ([Aichi Targets](#)) relevant to aquaculture policy and planning**

Target 2: By 2020, at the latest, **biodiversity values have been integrated into national** and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3: By 2020, at the latest, **incentives, including subsidies, harmful to biodiversity are eliminated**, phased out or reformed in order to minimize or avoid negative impacts, and **positive incentives for the conservation and sustainable use of biodiversity** are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for **sustainable production and consumption** and have kept the impacts of **use of natural resources well within safe ecological limits**.

The scope of the SDGs is broad and the goals and targets do not provide a simple framework that clearly applies to aquaculture development. Rather than seek to address each of these targets in turn (and indeed others that may be considered relevant), it makes more sense to consider the particular issues raised in the agenda and associated targets that are pertinent to aquaculture development and to which aquaculture development might contribute.

## 5.2 Key SDG issues for aquaculture development

**Food security, nutrition and poverty alleviation** (SDGs 1 and 2 and their associated targets) lie at the heart of the SDGs. Aquaculture development, when undertaken sustainably and equitably, has and will contribute significantly to these fundamental development goals. Aquaculture products are highly nutritious, and are in demand locally and internationally. The production and sale of aquaculture products can contribute directly (food, sales) or indirectly (wage labour, purchases of nutritious food) to increased income, food security and nutrition. However, the issues discussed below, which feature strongly across the SDG targets, and are of particular relevance to aquaculture development, will need to be addressed if the potential of aquaculture to contribute to these core goals is to be fully realised.

- Creating an enabling environment for sustainable aquaculture development
- Access and use rights and equity including human rights
- Resilience
- Productivity
- Environmental sustainability and efficiency of resource use
- Genetic resource conservation and sharing
- Infrastructure
- Distribution, trade and markets
- Decent work and working conditions

- Gender equality and youth opportunity
- Knowledge, education/training and information

To a large degree, the first of these will define opportunities to address all the other issues, and will be the main point of input for organisations such as FAO. In following text, each of these key issues is discussed with reference to relevant SDG targets and Aichi targets.

### ***Enabling environment***

Reference: SDG target 1b, 6.5, 11.3, 15.9; 16.b, 17.9, 17.14, 17.15, Aichi target 2

It is now almost universally accepted that aquaculture has a major role to play in rural development, and the supply of nutritious, sustainably sourced food for local national and international consumption. A critical precondition for ensuring that aquaculture development aligns with, and contributes to, all the relevant SDGs is a supportive “enabling environment”. This should include appropriate and well designed:

- policy and planning;
- legal and regulatory frameworks;
- institutions; and
- financial facilitation and incentives.

Together these should create a framework that seeds and stimulates aquaculture enterprise, allows and facilitates sustainable development, identifies and removes bottlenecks, constrains unsustainable or unfair practice, and corrects market imperfections or inappropriate social constraints. Good policy and planning are the means to create such an enabling environment, and are surprisingly weak in most countries.

The 2030 Agenda lays significant emphasis on a holistic and integrated approach to food production, rural development, integrated water resource management, and sustainable and fair food supply chains; and although planning as such does not feature strongly in the SDG framework, there are many targets related to, or dependent upon policy, planning, regulation and implementing institutions – and the particular issues faced by aquaculture development (Table 3). Appropriate SDGs and subsidiary targets, or those associated with the CBD, can be directly incorporated in new or revised policy and planning documents and associated instruments that relate directly to aquaculture (whether exclusively, or as part of broader rural or food production policies and plans), and where these policies, plans and associated instruments are well designed, the chances of realising the SDG targets will be greatly enhanced. While many of these targets apply more specifically to aquaculture practice (dealt with in the following sections) they are unlikely to be realized in the absence of a supportive enabling environment.

**Table 3: Key issues for aquaculture policy and planning and corresponding SDG and Aichi (A) targets**

<b>Issues and challenges for aquaculture policy &amp; planning</b>	<b>Relevant SDG and Aichi targets</b>
Ensuring that aquaculture contributes to poverty elimination, nutrition and food security, as well as economic development	SDG1,2, 8, 14.7
Promoting gender equality and human rights	1.4, 1.b, 4.5, 4.7, 4.a, SDG 5
The loss of habitat, and in particular wetland, mangrove	14.2, 14.5, 15.9; A2, A3, A4
Introduction of alien species	15.8
Loss of genetic diversity/genetic impacts	2.5, 15.6
Lost access to fishery resources	1.4, 2.3
Resource use/access conflicts – between rice farmers, fishermen and fish farmers	1.4, 2.3
Weak biosecurity governance, prevalence of disease/aquatic animal health problems	1.5
Poor practice in the use of chemicals and therapeutants	3.9, 12.4
Poor water supply and disposal infrastructure	2.a, 6.5
Cumulative impacts on water quality	3.9, 14.1
Poor working conditions and exploitation of migrant labour	4.4, 8.3, 8.5, 8.7, 8.8
Food quality and safety	2.1
Barriers to trade	2.b
Resilience to unpredictable market price and climate change	1.5, 2.c, 13.2, 13b
Low value added	9.b
Lack of skills	4.4
Lack of finance or financial incentive	17.1–17.5

The SDGs – far more clearly and comprehensively than previous global development strategies and commitments – identify the need for action and provide specific targets in respect of most of these issues. Corresponding targets can therefore be developed in regional, national or local plans devoted exclusively or in part to aquaculture development. Only aquatic animal health (or indeed livestock health) is not specifically flagged in the SDG or Aichi targets, but the secondary impacts of disease, including use of chemicals and therapeutants (3.9, 6.3, 12.4), as well as the need for resilient production systems (1.5, 11b, 13.1) – are strongly represented in the targets.

Article 9.1.3 of the Code of Conduct for Responsible Fisheries (CCRF) explicitly identifies the need to create a supportive enabling environment for sustainable aquaculture development through better planning: *States should produce and regularly update aquaculture development strategies and plans, as required, to ensure that aquaculture development is ecologically sustainable and to allow the rational use of resources shared by aquaculture and other activities.* This requirement is further strengthened through CCRF Articles 6.9; 9.2.4; 10.1.2; and 10.4.1. To support implementation of these requirements, FAO has developed a very substantial body of guidance material including the [Technical Guidelines for Responsible Fisheries](#) focusing on Aquaculture Development; the GESAMP (2001) report on [Planning and Management for Sustainable Aquaculture Development](#); and the FAO Fisheries and Aquaculture Technical Paper on [Aquaculture Planning \(Brugere et al., 2010\)](#). With other partners FAO has also facilitated the 1976 Kyoto Strategy; [The Bangkok Declaration and Strategy for Aquaculture Development \(FAO/NACA, 2001\)](#), and its follow-up evaluation and re-affirmation at the Global Conference on Aquaculture 2010 – [Farming the Waters for People and Food](#) – and the “[Phuket Consensus](#)” ([FAO/NACA, 2012a; 2012b](#)). These latter placed significant emphasis on national governments to plan for sustainable aquaculture development – taking into account social, economic and environmental dimensions. This guidance and its potential to facilitate delivery of the SDG goals and targets is reviewed in more detail in section 6.

### ***Access and use rights, and equity***

Reference: SDG targets 1.4, 5.a

FAO, partners and member countries will need to develop or refine legal frameworks and plans that ensure equitable access to land, water, seed, feed and other input resources required for aquaculture. There is particular emphasis in the 2030 Agenda on ensuring equitable access for women, and to some extent also for youth, as well as on human rights in general. The nature of such provisions will be highly context dependent. Linkages between the SDGs and relevant international human rights instruments are presented by the [Office of the United Nations High Commissioner for Human Rights](#).<sup>19</sup>

### ***Resilience***

Reference: SDG targets 1.5, 11b, 13.1, 14.2

Resilient aquaculture should be robust in the face of market volatility (related to both supply and demand), adverse weather, disease and climate change. This will require a raft of measures to underpin resilient aquaculture, including technical knowledge (training/extension); diversity of product or product opportunity (e.g. available seed for a variety of species); market information, market intelligence and a balance of bargaining power within the value chain; biosecurity (at all scales) and disease resistance. This will require national, sector and on-farm initiative, and should be elaborated in some detail in national aquaculture strategies.

### ***Productivity***

Reference: SDG targets 2.3, 2.4, 8.2, 8.3

Productivity will depend on a range of conditions including a suitable site (soil, water, climate, access to inputs and markets); high quality water, feed and other inputs; good husbandry (related to training and/or experience and commitment). Access to suitable site and water may be related to rights issues. The challenge here will be to link increased productivity with poverty alleviation and food security, and this will only be achieved if the rights and equity issues highlighted throughout the Agenda 2030 are addressed.

<sup>19</sup> OHCHR, 2016. Transforming our world. Human rights in the 2030 Agenda for Sustainable Development; [www.ohchr.org/Documents/Issues/MDGs/Post2015/TransformingOurWorld.pdf](http://www.ohchr.org/Documents/Issues/MDGs/Post2015/TransformingOurWorld.pdf); [www.ohchr.org/Documents/Issues/MDGs/Post2015/SDG\\_HR\\_Table.pdf](http://www.ohchr.org/Documents/Issues/MDGs/Post2015/SDG_HR_Table.pdf)

### ***Environmental sustainability and resource use efficiency***

Reference: SDG Targets 2.4, 6.4, 7.b, 8.4, 9.4, 12.1, 12.2, 12.3, 12.4, 12.5; 12.6, 14.2, 14.7, 14.c, 15.1, 15.2, 15.a, 15.b, 15.c; Aichi 4

Environmental sustainability is a key pillar of the SDGs (along with social and economic sustainability) There is strong emphasis in the SDGs on achieving this through more efficient resource use to keep within safe ecological limits.

*Sustainable production and consumption including resource use efficiency* is the subject of SDG 12, SDG target 8.4 and Aichi Target 4. Corresponding SDG indicators relate to material footprint and consumption per capita and per unit GDP. For an aquaculture enterprise or the aquaculture sector in a region or country, this would correspond to, for example, land, water, energy or feed consumption per (currency) unit value added. These might be further disaggregated into different types of land, feed or energy as appropriate to local circumstances or national strategy. Given the increasing trend toward intensively fed fish production systems there is a need and opportunity to monitor and improve both food (energy/protein) conversion efficiency and economic feed use efficiency (feed consumption per unit value added) at sector level.

There is also significant emphasis on the need to *reduce waste* throughout the value chain (targets 12.3 and 12.5), with multiple benefits relating to both improved resource use efficiency and increased value added throughout the value chain.

Resource use efficiency gains may be achieved through better practice and farm/business performance monitoring, encouraged through appropriate incentives (e.g. certification/labelling systems) or regulatory constraints. Achieving relevant targets will also depend on broader planning/legal/regulatory frameworks that address the need for ecosystem, habitat and biodiversity conservation, and the maintenance of water quality, although the latter may also be addressed through voluntary codes of practice.

The use of *chemicals and therapeutants* in aquaculture (as in agriculture) is a major and complex ongoing issue with implications for SDG and Aichi targets related to water quality, health and safety, resource use efficiency, and biodiversity. There are no simple approaches to the issue, which is often characterised by significant trade-offs (e.g. more chemicals/less disease (short term), but health and biodiversity issues, and emergence of pathogen resistance (long term) etc.). What is clear is that every significant aquaculture producing nation will need a *strong disease prevention and management strategy* and clear protocols and regulations relating to chemical use.

### ***Integration of biodiversity and ecosystem values***

Reference: SDG 14.a, 15.5, 15.9; Aichi 2

The 2030 Agenda and Aichi promote the integration of biodiversity and ecosystem values into plans, strategies and accounting systems. Aquaculture strategies will therefore need to address specifically how biodiversity values can be accommodated or promoted within or around aquaculture systems, and/or where there are any trade-offs between economically sustainable aquaculture and biodiversity/ecosystem values, that these are compatible with national and international commitments, are minimized or compensated in some way, and that any decisions relating to such trade-offs are well informed. More and better use of risk analysis<sup>20</sup> should inform such decisions.

### ***Genetic resource conservation and sharing***

Reference: SDG Targets 2.5, 2.a, 15.6

Conserving or improving broodstock genetic quality, conserving wild gene pools, and managing non-native species will require both “enabling environment” and on-farm actions and procedures. Sharing the benefits from genetic resources is a complex issue with social, economic and environmental dimensions and requires both government leadership and private sector engagement.

<sup>20</sup> Bondad-Reantaso, M.G., Arthur, J.R. & Subasinghe, R.P. eds. 2008. Understanding and applying risk analysis in aquaculture. *FAO Fisheries and Aquaculture Technical Paper*. No. 519. <ftp://ftp.fao.org/docrep/fao/011/i0490e/i0490e.pdf>

***Alien introductions***

Reference: SDG 15.8

Both agriculture and aquaculture have depended historically on the introduction of non-indigenous genetic material (species or races) – indeed this has lain at the heart of food production since ancient times. It is essential that this process is managed through appropriate protocols. These issues are explicitly addressed in the CCRF and associated guidance (see section 6.2)

***Infrastructure***

Reference: Target 2.a, 7.a, 7.b, 9.1, 9.4, 9.a

Infrastructure encompasses *hard infrastructure* such as water and electricity supply, and *soft infrastructure* such as extension, training or market information services. For aquaculture soft and hard infrastructure could also be extended to include quality broodstock or seed supply – though this may also be regarded as private sector service.

Aquaculture has been rather poorly served in terms of hard infrastructure provision in most countries, especially in respect of water and electricity supply or wastewater treatment. Again, irrespective of whether these services are supplied by public or private sector, there is clear need for a national strategy. Appropriate infrastructure provision or support is likely to contribute strongly to the other targets, and in particular those related to sites and access rights, resilience, productivity, biosecurity, and sustainability.

There is a continuum of possible infrastructure provisions for aquaculture ranging from jetties or canals to full blown “aquaculture parks” which may be appropriate according to context.

***Trade, markets and distribution***

Reference: Targets 2.b, 2.c, 6.6, 14.2, 14.b, 14.4, 15.5, 17.10, 17.11, 17.12

Aquaculture has suffered badly from price volatility and excessive dependence on one, or a few, related products. There are tremendous opportunities to extend the range of species cultivated to supply existing and develop new markets, thereby contributing to targets relating to poverty, hunger, health, and productivity. Some of these initiatives may also be combined with initiatives to restore populations of endangered or over-exploited wild populations. There are specific targets to correct trade restrictions and distortions (2.b) and improve market functioning (2.c). This implies the removal of any tariffs and subsidies, and improvements in market information and intelligence. Most countries accept the need for government role in facilitating access to market information; and this can be of tremendous value in reducing price volatility, facilitating new entry, and encouraging product or species innovation. Subsidies and tariffs are more difficult to address, since many countries (including developed countries) heavily subsidize (or incentivise) elements of the rural economy in order to meet other targets related to poverty, inclusion, food security, biodiversity, innovation and energy futures.

For aquaculture, this is an area that has historically received less attention from FAO and other development agents than technical assistance in production, but there are signs that this is changing with far more emphasis on the “value chain” in recent years. For example, a paper presented to the COFI Sub-Committee on Fish Trade in 2016<sup>21</sup> explores the relations between aquaculture supply, trade and consumption and highlights the implications for food security.

***Decent work***

Reference: SDG Targets 4.4, 8.2, 8.7, 8.3, 8.5, 8.8, 12.4

The 2030 Agenda – supported by other recent initiatives such as the ILO Decent Work Agenda – place significant emphasis on the concept of decent work, its potential contribution to poverty alleviation, and the need to eliminate child labour, forced labour and the exploitation of migrant labour. The Decent Work Agenda emphasizes

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<sup>21</sup> [FAO COFI, 2016c. The impact of aquaculture supply on trade and consumption. FAO Committee on Fisheries 15th session. Agadir, Morocco, 22–26 February 2016 COFI:FT/XV/2016/11.](ftp://ftp.fao.org/FI/DOCUMENT/COFI/cofift_15/11e.pdf)  
[ftp://ftp.fao.org/FI/DOCUMENT/COFI/cofift\\_15/11e.pdf](ftp://ftp.fao.org/FI/DOCUMENT/COFI/cofift_15/11e.pdf)

diversification, innovation, technological upgrading, entrepreneurship and sustainable enterprise, as well as social protection, occupational safety and health as important elements for decent work. Until recently, this is an area that has been largely ignored under aquaculture development and management initiatives, and there is a significant need and opportunity to take this agenda forward<sup>22</sup> for aquaculture in the coming decades.

### ***Gender and youth and poverty targeting***

Reference: SDG 1b, 4.5, 4.7, 4.a, 5.1, 5.5, 5.a 5.b, 8.6, 8.b

The 2030 Agenda places particular emphasis on the creation of pro-poor, gender and youth sensitive policy frameworks in order to achieve the primary goal of poverty elimination. There is clearly an opportunity to strengthen many aquaculture policies and strategies in this regard. However, this presents development strategists with a dilemma, because sustained success has been limited when aquaculture development initiative and support is focused on the poorest in society. Significant investment and knowledge, optimal location, and sometimes a minimum scale may all be required for successful aquaculture development. Opportunities for the poor in aquaculture development may nonetheless be identified in many situations, especially where the rights of the poor and women are recognized and facilitated. In any case, the emphasis on decent work in the 2030 Agenda explicitly recognizes that many of the poor are, or will be, in paid employment.

### ***Education, training, knowledge and information***

Reference: SDG Targets 2.3, 2.5, 4.4, 4.5, 4.7, 4.a, 4.b, 8.6, 17.b, 17.16

This lies at the heart of FAOs activities and has been a key element in historic interventions in support of aquaculture development in the past. The key in future will be to extend this area of work to encompass those SDGs which have been given less emphasis in the past, including decent work, access rights, gender equality, sustainable production and consumption, infrastructure etc.

## **5.3 Aquaculture practice**

It is worth briefly considering the nature of most aquaculture practice, and the opportunities for aquaculture practitioners – and those supporting them – to directly contribute to the SDGs. Aquaculture practice may be broken down into several categories each of which presents opportunities and challenges for meeting or contributing to the SDGs (Table 4). A great deal of supporting advice relating to most of these issues is available some of which is highlighted and reviewed in section 6.

**Table 4: Aquaculture practice - opportunities and challenges in meeting SDGs**

<b>Aquaculture activity</b>	<b>Challenges</b>	<b>Opportunities and corresponding targets</b>
<i>Biosecurity governance</i>	<ul style="list-style-type: none"> <li>Poor farmers with limited awareness and capacity to deal with diseases and other aquaculture risks</li> </ul>	<ul style="list-style-type: none"> <li>Increase capacity in analysing and managing aquaculture risks (2.b 3.9, 6.3, 12.4, 12.5)</li> <li>Effective biosecurity at policy and farm levels (1.5, 2.b, 3.9, 12.4)</li> <li>Reduce the number of disease outbreaks and reduce production losses (2.b, 3.9, 6.3, 12.4, 12.5)</li> <li>More prudent and responsible use of antimicrobials and prevent antimicrobial resistance (AMR) (2.b, 3.9, 6.3, 12.4, 12.5)</li> </ul>
<i>Site conversion; or site selection and access</i>  <i>Impacts on social opportunity, enterprise sustainability and environmental impact</i>	<ul style="list-style-type: none"> <li>Most poor farmers have very limited choice regarding siting of aquaculture activities</li> </ul>	<ul style="list-style-type: none"> <li>Integrated and climate resilient water resources management and ecosystem restoration (6.5, 8.3, 13.b, 14.2, 15.9);</li> <li>Habitat, biodiversity and ecosystem service conservation (15.1, 15.3, 15.4, 15.5)</li> <li>Access (land, water, resources, information, finance, transport), gender equality (1.4, 5.a, 8.10, 9.1, 9.3, 9.a, 9.c, 11.2, 14.b)</li> <li>Minimize resource use conflict</li> </ul>

<sup>22</sup> [FAO COFI. 2015b. Sub-Committee on Aquaculture. Eighth Session. Improving livelihoods through decent employment in aquaculture. COFI:AQ/VIII/2015/9. www.fao.org/cofi/30797-0bb019f2e2a73b99f0bbe0010ca41ec41.pdf](http://www.fao.org/cofi/30797-0bb019f2e2a73b99f0bbe0010ca41ec41.pdf)

<b>Aquaculture activity</b>	<b>Challenges</b>	<b>Opportunities and corresponding targets</b>
<i>Design and investment in production system</i>	<ul style="list-style-type: none"> <li>Limited finance and technical knowledge</li> <li>Limited entrepreneurial motivation or capacity</li> </ul>	<ul style="list-style-type: none"> <li>Increase business/livelihood resilience (1.5, 2.4, 8.3, 13.1)</li> <li>Increase resource use efficiency (6.4; 6.a,7.3, 8.4, 9.4)</li> <li>improve health, reduce chemical usage (3.9, 6.3, 12.4)</li> <li>promoting entrepreneurship, innovation, enterprise development; and facilitating access to financial services (8.3)</li> </ul>
<i>Sourcing inputs (water, seed, feed, therapeutants, energy)</i>	<ul style="list-style-type: none"> <li>Limited availability;</li> <li>finance and technical knowledge</li> </ul>	<ul style="list-style-type: none"> <li>Improve resource use efficiency (6.4, 7.4, 7.a, 8.4, 9.4)</li> <li>Responsible management of introductions (15.7, 15.8)</li> <li>Conservation, sustainable use, development and sharing of genetic resources (2.5, 15.6)</li> <li>reduce chemical and organic pollution and associated health risk (3.9, 6.3, 12.4, 12.5)</li> <li>increase productivity and income (2.3, 2.4, 8.2)</li> </ul>
<i>Utilizing/employing labour</i>	<ul style="list-style-type: none"> <li>Much family labour not amenable to employment law;</li> <li>competition driving down wages/driving up hours</li> </ul>	<ul style="list-style-type: none"> <li>Decent job creation (4.4, 8.3, 8.5, 8.6)</li> <li>Implement decent work guidance and protocols;</li> <li>Promote gender equity and youth employment opportunity (4.4, 8.6)</li> </ul>
<i>Farm operation</i>	<ul style="list-style-type: none"> <li>Limited finance and technical knowledge;</li> <li>limitations imposed by farm design and environment</li> </ul>	<ul style="list-style-type: none"> <li>Increase resilience (13.1) including climate change adaptation</li> <li>Implement codes of practice (in relation to all relevant targets);</li> <li>Training and skills development (4.4, 4.7,</li> <li>Genetic resource conservation and utilization strategies (2.5, 15.6)</li> </ul>
<i>First hand sales and marketing</i>	<ul style="list-style-type: none"> <li>Existing power relations in the value chain;</li> <li>Infrastructure and market access</li> </ul>	<ul style="list-style-type: none"> <li>Quality and value added through improved handling (8.2)</li> <li>Better price through enhanced market intelligence (2.c)</li> <li>Reduced waste (12.3)</li> </ul>
<i>Processing and distribution</i>	<ul style="list-style-type: none"> <li>Existing power relations in the value chain;</li> <li>Infrastructure and market access</li> <li>Traceability</li> <li>Finance</li> </ul>	<ul style="list-style-type: none"> <li>Quality and value added through improved handling (8.2)</li> <li>Value added through new product identification (8.2)</li> <li>Better price through enhanced market intelligence (2.c)</li> <li>Increased trade and reduced tariffs (2.b, 8a, 10a, 14.6, 17.10, 17.11, 17.12)</li> <li>Access to safe and nutritious food for all (2.1)</li> <li>Reduce waste (12.3)</li> <li>Economic benefits to SIDS and LDCs (14.7)</li> </ul>
<i>Retailing</i>		<ul style="list-style-type: none"> <li>Better price through sustainability certification/branding and promotion (note – there are no SDG targets relating to certification and standards)</li> <li>Reduced waste (6.3, 11.6, 12.3)</li> </ul>

#### 5.4 Adapting and implementing at national level

For implementation, it will be important to consider how to introduce the SDGs, and what steps to take in order to facilitate mainstreaming of the 2030 Agenda in the context of aquaculture development planning and management. Efforts of mainstreaming the messages and ambitions of the 2030 Agenda and its SDG targets may focus on aquaculture development planning and management at national, sectoral and stakeholder levels and should involve producers, suppliers, buyers, processors, local communities, farm workers, consumers, etc. and related public authorities and institutions as well as civil society organizations. While mainstreaming efforts will invariably be highly context-specific, some general guidance on mainstreaming approaches and actions are available, for example such as developed by UNDG ([UNDG, 2017b](#)) summarized below in Figure 2.

Figure 2: Mainstreaming and adapting Agenda 2030: key activities (after [UNDG, 2017b](#))



## 6. ALIGNMENT OF FAO'S AQUACULTURE DEVELOPMENT GUIDANCE AND OTHER INTERNATIONAL AQUACULTURE INITIATIVES WITH THE SDGS

Promoting sustainable aquaculture development has always been an important part of FAO's activity – at international level in terms of developing or facilitating the development of guidance, information and data; at regional and national level in terms of supporting aquaculture strategy and planning initiatives; at community level as part of community based planning and management initiatives; and at farm level through national or regional development programmes.

### 6.1 The Code of Conduct for Responsible Fisheries (CCRF)

#### *General Principles*

The **CCRF** seeks to promote better policy, planning and practice and has a section dedicated to aquaculture development (FAO, 1995). Most of the 19 General Principles apply to capture fisheries rather than aquaculture, but nonetheless cover most of the issues addressed by the SDGs (Table 5).

**Table 5: Alignment of CCRF General Principles with SDG targets**

<b>Code of Conduct Principles (summary only)</b>	<b>Relevant SDG goals and targets</b>
6.1, 6.8 Conservation and management of aquatic ecosystems; user responsibility	14.2, 14.5, 15.9; A2, A3, A4
6.2 Resource management for food security, poverty alleviation and sustainable development	2, 15, 15.1, 14.7, 14.c
6.4, 6.5 The use of best available scientific and traditional knowledge	4b, 12.a, 14.5, 14.a, 17.6, 17.8
6.5 Application of the precautionary approach	Not flagged in the SDG framework
6.6 Application of environmentally sustainable technology and practice	1.4, 2.a, 5.b, 9.b, 14.a, 17.6, 17.8, 17.16
6.6 Minimize waste	6.3, 6.a, 12.3, 12.5
6.4 Recognition of transboundary issues	6.5
6.3 The need to match resource use with natural productivity	15, 15.1, 14.7, 14.c
6.7 The need to ensure the quality, safety and nutritional value of fishery products throughout the value chain	2.1
6.9 The need to integrate fisheries and aquaculture activities into coastal area management	6.5, 14.2, 15.9
6.13 Timely and transparent decision making	16.6, 16.7
6.14 Fish trade facilitation and compliance with WTO standards	2b, 10.9, 17.10, 17.12
6.16 Awareness, education, training	4, 4.3, 4.5, 4.7, 4.a, 4.b, 12.8, 13.3
6.17 Safe, healthy and fair working and living conditions	4.4, 8.3, 8.5
6.18 The importance of small scale producers	2.3, 8.3, 9.3, 14.b
6.19 Diversification of income and diet	2.1, 2.2, 2.3, 8.2, 9b

Implementation of the CCRF is likely to strongly support delivery of Goals 1 (end poverty), 2 (end hunger), 14 (sustainable use and development of marine resources) and 15 (sustainable terrestrial ecosystems); and to a lesser extent 3, 4, 6, 8, 9, 12, 16 and 17. Implementation would have limited impact on delivery of SDG 5 (gender equality), 7 (energy access), 10 (inequality), 11 (safe, resilient and sustainable cities), and 13 (combat climate change).

#### *Article 9: Aquaculture*

Article 9 of the CCRF applies specifically to aquaculture, and again covers many of the issues highlighted in the 2030 Agenda (Table 6).

**Table 6: Alignment of CCRF Article 9 with SDGs**

<b>Aquaculture specific articles in the CCRF (summary only)</b>	<b>Relevant SDG targets</b>
9.1.1 Enabling administrative frameworks	1b
9.1.2 Advance evaluation of effects on genetic diversity and ecosystem integrity	2.5
9.1.3 Aquaculture planning for sustainable resource use and rational sharing of resources with other activities	6.5, 11.3, 11.a, 11.b, 12.2, 13.2, 13.b, 15.9
9.1.4 Impact on local communities and livelihoods	Nothing specific but lots on resource rights 1.4, 5a
9.1.5 Social, economic, environmental assessment and monitoring	No mention or emphasis
9.2 Specific provisions for aquaculture development within transboundary ecosystems	6.5
9.2.1 Cooperation in promotion of sustainable practices	17.6, 17.9, 2.a, 6.5, 6.a
9.2.2 Responsible choice of species, sites, management with cross boundary implications	
9.2.3 Consultation prior to non-indigenous species introductions	15.8
9.2.4 Databases and information networks to collect, share and disseminate data	2.c, 5.b, 9.c, 12.8, 17.8
9.2.5 Cooperation to monitor input use	
9.3.1 Cooperation on conservation of genetic diversity and ecosystems, minimizing impact of alien species on wild and farmed stocks (genetic, disease)	2.5, 2.a, 15.6
9.3.2 Development and implementation of codes of practice re introductions and transfers of aquatic organisms	15.8
9.3.3/4 Minimizing risk of disease through codes related to genetic improvement, production practice, and control of movement and non-native introductions	15.8
9.3.5 Science based conservation and restoration of endangered species	15.5
9.4.1 Promote responsible aquaculture practices in support of rural communities, producer organizations and fish farmers	2.3
9.4.2 Promote active participation of fish farmers and their communities in the development of responsible aquaculture management practices	5.5, 6b

While there is broad alignment, there are nonetheless some significant differences. Section 6.1 of the CCRF emphasises the *responsibility of the resource user* to conserve and manage aquatic ecosystems and to use resources sustainably. While this chimes with the more general requirements of the SDGs to conserve and manage aquatic resources, the latter do not specifically highlight user responsibility. The CCRF advocates the application of the *precautionary approach*, which does not figure explicitly in the SDGs, targets or indicators.

The CCRF also places significant emphasis on assessment (social, economic, environmental) which does not figure significantly in the SDG goals or targets. It may be argued that this is because the SDGs represent an outcome framework rather than a guidance framework, and that in any case these concepts are implicit in the targets related to planning and management.

The SDG framework on the other hand places more emphasis on *understanding risk and building resilience (to natural disaster, climate change, market volatility)*. While these concepts do not figure significantly in the CCRF, they are an important element in some of the technical guidance to the CCRF, including in the “ecosystem approach” discussed below. The SDG framework also places more emphasis on the *value chain* – promoting fair and equitable trading relations; developing opportunities; producing safe and nutritious food products. Perhaps most importantly however, the 2030 Agenda places far more emphasis on *economic and social equity issues* (gender, youth, minority – justice, inclusion) alongside the pre-eminent goals of *poverty eradication and zero hunger*.

### **Other Articles of the CCRF**

While other articles of the CCRF refer primarily to fisheries, there are nonetheless some that have particular relevance to the achievement of the SDGs.

- CCRF Article 5.1 recognizes the need to take account of the sometimes limited capacity of developing countries to implement measures to promote more sustainable fisheries and aquaculture development, and the need for “*states, relevant intergovernmental and non-governmental organizations and financial*

*institutions to work for the adoption of measures to address the needs of developing countries*". This is consistent with SDG17 and in particular targets 17.2, 17.3 and 17.6.

- CCRF 8.1.5 seeks to promote health and safety in the fishery sector – contributing to SDG 8.8.
- CCRF Article 8.6 requires states to promote energy standards, develop guidelines, and facilitate energy use efficiency in harvest and postharvest activities – directly contributing to the achievement of SDG 7.
- CCRF Article 10 promotes the integration of fisheries and aquaculture into coastal area management, in strong alignment with SDG targets 14.1, 14.2 and 14.5.
- CCRF Article 12 focuses on the crucial role of well-directed research to underpin sustainable fisheries and aquaculture, thus reinforcing SDG 14a.

## 6.2 Technical Guidelines for the implementation of the CCRF

Additional guidance on the implementation of the CCRF is provided in the FAO [Technical Guidelines for Responsible Fisheries](#) series.<sup>23</sup> Those guidelines of relevance to aquaculture include:

- TG 3 Integration of fisheries into coastal management
- TG 5 Aquaculture development
  - TG 5 suppl. 1 Feed manufacture
  - TG 5 suppl. 2 Health management and movement
  - TG 5 suppl. 3 Genetic resource management
  - TG 5 suppl. 4 Ecosystem approach
  - TG 5 suppl. 5 Use of wild fish as feed
  - TG 5 suppl. 6 Use of wild fishery resources for culture-based fisheries
- TG 7 Responsible fish utilization
- TG 11 Responsible fish trade
- TG 12 Information and knowledge sharing

Also relevant, but not strictly part of the CCRF guidance series, are the FAO Technical Guidelines on aquaculture certification<sup>24</sup> (FAO, 2011).

### ***Integration of fisheries into coastal area management*<sup>25</sup> (TG3)**

This guidance (FAO, 1996) identifies the need to consider the development and management of the fisheries sector “*within the context of coastal area management and development planning, i.e., in the context of the protection and management of the resources, the environment and the activities of the coastal area*”. The guidance is strongly supportive of several SDG principles, particularly SDG Targets 1b, 14.1, 14.2, 14.5, 17.14 and 17.15. It also sets out the key elements for an effective adaptive participatory planning and management system with strong emphasis on stakeholder participation – again contributing to SDG goals and targets 5.5, 6.b, and 17.6. The guidance emphasises in particular the need to “*account fully for the needs and impacts of other sectors. The key will be to develop institutions capable of integration, especially in terms of agreed upon objectives and standards*”.

### ***The Ecosystem Approach to Aquaculture*<sup>26</sup> (TG5.4)**

The ecosystem approach is defined in TG 5 suppl. 4 (FAO, 2010a) as follows:

*“An ecosystem approach to aquaculture (EAA) is a strategy for the integration of the activity within the wider ecosystem such that it promotes sustainable development, equity, and resilience of interlinked social-ecological systems.”*

<sup>23</sup> FAO Technical Guidelines for Responsible Fisheries. [www.fao.org/fishery/topic/166294/en](http://www.fao.org/fishery/topic/166294/en)

<sup>24</sup> FAO. 2011. [Technical guidelines on aquaculture certification](http://www.fao.org/3/a-i2296t.pdf). [www.fao.org/3/a-i2296t.pdf](http://www.fao.org/3/a-i2296t.pdf)

<sup>25</sup> FAO. 1996. Integration of fisheries into coastal area management. Technical Guidelines for Responsible Fisheries 3. [ftp://ftp.fao.org/docrep/fao/003/W3593e/W3593e00.pdf](http://ftp.fao.org/docrep/fao/003/W3593e/W3593e00.pdf)

<sup>26</sup> FAO. 2010a. Ecosystem Approach to Aquaculture. Technical Guidelines for Responsible Fisheries 5. Suppl.4. [www.fao.org/docrep/013/i1750e/i1750e.pdf](http://www.fao.org/docrep/013/i1750e/i1750e.pdf)

The Ecosystem Approach to Aquaculture is guided by three strategic principles:

1. Aquaculture development and management should take account of the full range of ecosystem functions and services, and should not threaten the sustained delivery of these to society.
2. Aquaculture should improve human well-being and equity for all relevant stakeholders.
3. Aquaculture should be developed in the context of other sectors, policies and goals.

Like TG3 the EAA guidance emphasises the building of effective planning and management systems including effective implementing institutions. Resilience, precaution, participation, linked social ecological and economic systems, carrying capacity, ecosystem services are all key concepts in the approach.

Unlike some of the other technical guidelines (and in particular TG 5) the guidance goes somewhat beyond the CCRF in terms of both scope and approach. The concepts of equity, resilience (social, economic and ecological), and participation are all more strongly emphasised than in the “parent” documentation. The strong links between social, ecological and economic systems and environmental sustainability; and the importance of precaution are also strongly emphasised, along with the need for *incentives* to promote sustainability.

The approach contributes strongly to many of the SDG goals and targets:

- Principle 1 corresponds closely to “sustainable use” as articulated in SDG Goal 15 and targets 11.4, 14.1, 14.2, 14.5, 14.7, 14.c and 15.1.
- Principle 2 corresponds to Goal 3 and targets 3.4 and 9.1
- Principle 3 is closely related to 6.5, 11.a, 15.9, 17.14, 17.16

### 6.3 The Bangkok Declaration and Phuket Consensus

There have been other international and regional commitments to sustainable aquaculture development. In 2000 a Conference on Aquaculture Development in the Third Millennium was held in Bangkok, Thailand, culminating in “[The Bangkok Declaration and Strategy](#)”.<sup>27</sup> A follow-up conference in 2010 resulted in additional “recommendations” known as the “[Phuket Consensus](#)”.<sup>28</sup>

The 17 key elements for sustainable aquaculture development (that states should incorporate in their aquaculture development plans and strategies) as articulated in the Bangkok Declaration and Phuket Consensus, are summarized in Table 7, with a comment relating to progress to date and relevant SDGs to which such progress might contribute.

**Table 7: Key elements of the Bangkok Declaration and Phuket Consensus: relevance to the SDGs**

Bangkok Declaration Phuket Consensus <i>Key elements</i>	Progress and challenges	Relevant SDGs and targets
Investing in people through education and training	Tremendous growth – though some self-serving rather than industry/development serving	4
Investing in R&D	Much progress – e.g. more efficient feeds and feeding; reduced waste. Often low adoption because of lack of attention to codes of practice (e.g. energy, management) and competition; and lack of attention to market failure in respect of external costs of unsustainable activity	8.2, 8.3; 9, 9.5, 9b; 17.6; 17.8

<sup>27</sup> [NACA/FAO. 2000. Aquaculture Development Beyond 2000: the Bangkok Declaration and Strategy. Conference on Aquaculture in the Third Millennium, 20-25 February 2000, Bangkok, Thailand. NACA, Bangkok and FAO, Rome. 27pp. www.fao.org/3/a-ad351e.pdf](#)

<sup>28</sup> The Phuket Consensus, in: FAO/NACA, 2012b. *Farming the Waters for People and Food*. R.P. Subasinghe, J.R. Arthur, D.M. Bartley, S.S. De Silva, M. Halwart, N. Hishamunda, C.V. Mohan & P. Sorgeloos, (Eds.) Proceedings of the Global Conference on Aquaculture 2010, Phuket, Thailand. 22–25 September 2010. FAO, Rome and NACA, Bangkok. 896 pp. [www.fao.org/docrep/015/i2734e/i2734e07.pdf](#)

<b>Bangkok Declaration Phuket Consensus</b> <i>Key elements</i>	<b>Progress and challenges</b>	<b>Relevant SDGs and targets</b>
Improving information and communication	Tremendous progress with web based resources which now dominate information. However, there are significant concerns because much guidance is based on particular agendas and/or limited practical experience; and there is limited quality control.	4
Improving food security and alleviating poverty	Tremendous success, but some problems – risk; debt; disease; sales for cash rather than consumption for health and nutrition	1, 2
Improving environmental sustainability	Ecosystem approach widely promoted. Sustainable consumption as key driver has not been fully exploited – dirty is still cheaper.	Environmental sustainability is a cross cutting theme across all goals and targets
Integrating aquaculture into rural development	>30 million persons benefit, often in rural areas. Government guidelines on better allocation of resources?	None really corresponds, though 6.5, 9.3 and 10 (reduce inequality within and between countries) and 6.5 (integrated water resources management) may be relevant
Strengthening institutional support	Very difficult and controversial to measure; Nonetheless a big issue in many countries, with some positive and some negative aspects. Plans and strategies represent a partial indicator, but need an enabling environment including facilitating institutions to be effective. Much remains to be done.	Again, this is cross cutting but important element in 16 (16.6, 16.8) and 17
Applying innovations in aquaculture	This is not well documented perhaps surprisingly, but major innovations in husbandry, breeding, genetics, disease control, feed formulation have taken place.	8.2, 8.3, 9, 9.5, 9b, 17, 17.6, 17.8
Improving culture based fisheries and enhancements	Limited contribution relative to potential – often constrained by market/rights/organisational issues	Possible relevance to SDG 15 – alien introductions
Managing aquatic animal health	Sophisticated advances, but barely keeping up with the challenges associated with intensification	While significant emphasis on human health, nothing specific on animal health. However, disease directly linked to use of chemicals and pollution referred to in targets 3.9, 6.3, and 14.1
Improving nutrition in aquaculture	Constantly evolving and increasingly driven by large scale commercial interest	14; also 6.4, 6.a, 7.3, 7.a, 7.b, 8.4 and 9.4
Applying genetics to aquaculture	Genetic management has been poor; reliance on introductions rather than improvements	2.5 and 15.6
Applied biotechnology	Opportunities and dangers – but need to conserve genetic resources to realize opportunities	2.5 and 15.6
Improving food quality and safety	Strongly driven by export markets	2.1
Promoting market development and trade	Rather little attention to this from development community; but this is changing	2.3; 2.b.; 2.c; 9.3; 14.b; 17.12
Supporting strong regional and interregional cooperation	Significant progress with regional aquaculture networks such as NACA, ANAF, MASA, RAA,	17

There is significant alignment between the Bangkok Declaration and the SDGs. However, it is notable that certain elements that figure strongly in the SDGs are not flagged in the Declaration – in particular those with a more political/socio-economic development focus:

- Healthy lives and wellbeing;
- Peace, justice and inclusiveness;
- Equity and equitable access rights, youth opportunity, gender equality and empowerment of women and girls;
- Decent work;
- The need for resilient infrastructure, and resilience generally in the face of climate change;
- Promotion of sustainable consumption and production;
- Sustainable forest management, land degradation and biodiversity loss - although these should be addressed under environmental sustainability.

These gaps are related in part to the technical focus of aquaculture, but partly to the shift in the development agenda from technical support to socio-economic development facilitation.

#### Box 11: Phuket Recommendations, 2010

- Increase the effectiveness of governance of the aquaculture sector
- Encourage and facilitate greater investments in scientific, technical and social innovations
- Conduct accurate assessments of the progress and contributions of aquaculture, including aquatic plants, to national, regional and global economies, poverty alleviation and food security
- Intensify assistance to the small farmers
- Support gender sensitive policies and implement programmes
- Increase and strengthen collaboration and partnerships
- Give special emphasis on Sub-Saharan Africa and the least aquaculturally developed countries and areas

Source: [The Phuket Consensus](#), in: FAO/NACA, 2012b. *Farming the Waters for People and Food*.

The [recommendations](#) arising from the Phuket Meeting (Box 11) all contribute to the achievement of the SDGs, and the previous gap relating to gender is filled. More attention is paid to social dimensions of aquaculture development on the re-affirmation and recommendations, as well as greater awareness of the need for aquaculture that is resilient in the face of both market uncertainty and climate change.

In order to be more supportive of the SDGs it is recommended that future strategies and commitments of this type place more formal emphasis on the gaps noted above.

#### 6.4 Blue Growth and the FAO Blue Growth Initiative

The concept of the Blue Economy and Blue Growth has entered into the political economic and development vocabulary over the last decade, and in particular since Rio+20 Conference in 2012, and the [Global Oceans Action Summit](#) of 2014. As with all such concepts there is a range of interpretation, definition, and emphasis according to interest, knowledge and agenda. But at the heart of more sustainable interpretations of the concept is the notion that under the blue economy *environmental degradation will be decoupled from economic growth*.<sup>29</sup> Blue growth seeks to balance the needs of food security, economic growth, social development and sustainable resource use.<sup>30</sup> It also seeks to reconcile “economic growth with improved livelihoods and social equity, and strengthen transparent, reliable and more secure food systems”<sup>31,32</sup> (Box 12).

#### Box 12: What is Blue Growth?

“Blue Growth prioritizes balancing the sustainable management of natural aquatic resources taking into consideration environmental, social and economic needs, with an emphasis on efficient resource use in capture fisheries and aquaculture, ecosystem services, trade, livelihoods and food systems.

It is sustainable growth and development from economic activities in the oceans and other aquatic systems that minimizes environmental degradation, biodiversity loss and unsustainable use of resources and maximizes economic and social benefits”.

<sup>29</sup> FAO 2016g. Blue Economy and increasing economic benefits for SIDS and LDCs from sustainable management of marine resources. Unpublished document.

<sup>30</sup> FAO Policy Series: Blue Growth Initiative video. [www.youtube.com/watch?v=YkLRtJD7Y0k](http://www.youtube.com/watch?v=YkLRtJD7Y0k)

<sup>31</sup> FAO COFI. 2015c. FAOs Blue growth initiative and aquaculture. COFI AQ/VIII/2015/7. [www.fao.org/cofi/30795-045b188b4c734e56986ed853cfb667a88.pdf](http://www.fao.org/cofi/30795-045b188b4c734e56986ed853cfb667a88.pdf)

<sup>32</sup> FAO 2016h. Blue Growth Initiative, Discussion Paper 2: Theory of Change. Unpublished Paper.

FAO has launched a Blue Growth Initiative (BGI) that seeks to facilitate development of a blue economy throughout the world,<sup>33</sup> but with a strong current emphasis on Asia Pacific.

The objectives and principles of BGI are similar to, and build on, many of those of the CCRF and Ecosystem Approach, and are strongly aligned with the SDGs. Indeed, the core concept of **decoupling economic growth from environmental degradation** is the specific subject of SDG target 8.4.

BGI seeks to support sustainable growth in the marine and aquatic environments through the creation of an enabling environment (that will in turn foster responsibility and stewardship); strengthening governance and management of aquatic systems; conserving biodiversity and habitats; and empowering communities.<sup>34</sup> It emphasises the basic principle of sustainable development but goes further, highlighting the social themes of inclusion, equity, justice, improved livelihoods, and the importance of social, economic and environmental resilience. Engagement with the private sector is seen as important for implementation, as is incentivisation, along with the traditional development tools of capacity building, information, education, technology and innovation. Some interpretations<sup>35</sup> also emphasize improvements in resource utilization efficiency and production efficiency - which should reduce pressure on natural resources while at the same time improving income generation. It is also arguable that many interpretations of Blue Growth shift the emphasis from production to efficiency and equity throughout the value chain.

FAO envisages that Blue Growth initiatives will lead to more sustainable practices and improved economic performance in aquaculture, capture fisheries, and seafood systems - in parallel with the conservation and restoration of ecosystem services.<sup>36</sup>

Blue Growth as interpreted by FAO is closely aligned with the Ecosystem Approach to aquaculture. Taken together, the full range of interpretation of Blue Growth is also closely aligned with *all* the goals and many of the targets in the 2030 Agenda. As a concept or “brand” Blue Growth is likely to be attractive to politicians and economists throughout the world, and represents an opportunity to focus attention on the economic importance of resource use efficiency, resource conservation, and management systems designed to sustain strong and resilient blue growth.

The emphasis once again on creating an *enabling environment* is important. This is a key objective of good aquaculture planning, and should allow, facilitate and incentivise better aquaculture practice.

There is also increased emphasis on *decent work*. A recent paper presented to the COFI Sub-Committee on Aquaculture is of particular relevance.<sup>37</sup> The Blue Growth Initiative “recognizes that decent work in fisheries and aquaculture will help secure sustainable marine and freshwater resource management, while also contributing to global economic and social development. Improved working conditions in fishing and aquaculture will furthermore enhance responses to market demands and improve business through export and market access”.<sup>38</sup>

## 6.5 Summary of contributions of sustainable aquaculture guidance and initiatives to delivery of SDGs

Taken together these various sources of guidance would contribute to the achievement of almost all the SDGs and corresponding targets, and especially those relating to poverty, hunger, nutrition, education, wellbeing, economic growth, employment, and sustainable use of resources (Figure 3). They all furthermore emphasise the three dimensions of sustainability – social, economic and environmental. Most of these resources however – and particularly the earlier ones, put rather less emphasis on rights, empowerment of women and youth; and decent work – all of which are highlighted across the SDGs.

<sup>33</sup> FAO COFI. 2015c. AQ/VIII/2015/7 op cit

<sup>34</sup> FAO 2016h. Blue Growth Fundamentals. Discussion paper 1. Fundamentals. Unpublished Paper.

<sup>35</sup> FAO Asia and the Pacific's Blue Growth Initiative. [www.fao.org/asiapacific/perspectives/blue-growth/en/](http://www.fao.org/asiapacific/perspectives/blue-growth/en/)

<sup>36</sup> Blue growth - unlocking the potential of seas and oceans. [www.fao.org/zhc/detail-events/en/c/233765/](http://www.fao.org/zhc/detail-events/en/c/233765/)

<sup>37</sup> FAO COFI. 2015b. Improving livelihoods through decent employment in aquaculture. COFI:AQ/VIII/2015/9 [www.fao.org/cofi/30797-0bb019f2e2a73b99f0bbe0010ca41ec41.pdf](http://www.fao.org/cofi/30797-0bb019f2e2a73b99f0bbe0010ca41ec41.pdf)

<sup>38</sup> FAO. 2016i. Scoping study on decent work and employment in fisheries and aquaculture: issues and actions for discussion and programming. Knowledge materials. [www.fao.org/3/a-i5980e.pdf](http://www.fao.org/3/a-i5980e.pdf)

**Figure 3: Contribution of sustainable aquaculture guidance and initiatives to SDGs**

	Sustainable Development Goal	CCRF	CCRF Technical guidelines	Bangkok Declaration and Phuket	Blue Initiative (including EAF/EAA) <sup>39</sup>	Growth
1	End poverty in all its forms everywhere					
2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture					
3	Ensure healthy lives and promote wellbeing for all at all ages					
4	Ensure inclusive and quality education for all and promote lifelong learning					
5	Achieve gender equality and empower women and girls					
6	Ensure availability and sustainable management of water and sanitation for all					
7	Ensure access to affordable, reliable, sustainable and modern energy for all					
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all					
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation					
10	Reduce inequality within and among countries					
11	Make cities and human settlements inclusive, safe, resilient and sustainable					
12	Ensure sustainable consumption and production patterns					
13	Take urgent action to combat climate change and its impacts					
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development					
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss					
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels					
17	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development					

## 6.6 COFI Aquaculture priorities

The COFI Sub-Committee on Aquaculture (COFI-AQ) recently reviewed a discussion document setting out options for a more strategic approach to COFI's work in support of aquaculture.<sup>40,41</sup> Recognizing the overarching

<sup>39</sup> Ecosystem Approach to Fisheries and Aquaculture (EAF/EAA).

<sup>40</sup> FAO COFI.2015a. Towards Establishing a Strategic Framework for Strengthening the Role of the COFI Sub-Committee on Aquaculture in Advancing Aquaculture Development. COFI/AQ/VIII/2015/5. [www.fao.org/cofi/43341-04a74a5d167de0034251e8eaf83de443e.pdf](http://www.fao.org/cofi/43341-04a74a5d167de0034251e8eaf83de443e.pdf)

<sup>41</sup> FAO COFI. 2015d. Report of the Eighth Session of the Sub-Committee on Aquaculture. Brasilia, Brazil, 5–9 October 2015. FIRA/R1131. [www.fao.org/cofi/44343-053900d0223f462e3e333e5236043302f.pdf](http://www.fao.org/cofi/44343-053900d0223f462e3e333e5236043302f.pdf)

priority of the contribution of aquaculture development to food security and nutrition, the Sub-Committee agreed the following priorities for its future work:

- Biosecurity: including aquatic animal health;
- Environmental interactions: including environmental impact (positive and negative), climate change adaptation and resilience, and biodiversity issues;
- Farming and production systems: including technology and best management practices;
- Governance: including laws, regulations, and policies, spatial planning, and institutional capacity;
- Inputs: including access to quality feed and seeds, aquatic genetic resources, domestication and breeding improvement, water and land;
- Socio-economic development: including economic development, value-chain strengthening and investment, improvement of public perception and awareness of aquaculture, gender issues, decent employment and workers' rights;
- Technology transfer and training: including capacity development and extension services.

The emphasis on biosecurity is understandable given the tremendous costs associated with disease in aquaculture systems across the world. While biosecurity and animal disease do not figure specifically in the SDGs, building resilient production systems is the subject of target 2.4, and the secondary effects associated with heavy and often inappropriate use of chemicals and therapeutants is the subject of targets 3.9, 6.3 and 12.4.

The priority related to environmental interactions, BMPs and inputs should contribute to many SDGs, and particularly those related to sustainable production and consumption (8.4, 12.1, 12.a), efficient resource use (8.4, 12.2, 14.7, 14.c), chemical use (see above), water use (6.4), and energy efficiency (7.3).

Governance is an important cross cutting theme in the SDGs, with specific relevant targets in 1b and 9b, and several indicators relating to governance issues. Socio-economic development is also a major theme across the SDGs with targets related to socio-economic development, value chains, gender issues and decent work. Technology transfer and training is of course again a major cross-cutting theme in the SDGs.

Overall the proposed priorities for COFI-AQ are well aligned with both the Blue Growth Initiative and the SDGs.

## 7. DISCUSSION AND CONCLUSIONS

The SDGs are a universal set of goals, targets and indicators that UN member states<sup>42</sup> agreed to use to guide their development policies and initiatives over the next 15 years. The SDGs apply equally to developed and developing countries, and the framework of targets and indicators provides the basis for stimulating initiative, monitoring performance and leveraging compliance.

The 2030 Agenda is generally more comprehensive than previous global commitments to sustainable development, with greater emphasis on opportunities to reduce hunger to zero, and to reduce poverty and inequality (opportunity, resource access, gender, youth) in all their forms. It is associated with a financing framework (The Addis Ababa Action Agenda) that recognizes the need not just for innovation and business development but also social protection – which in the medium term will allow for breaking out of the vicious spiral of poverty experienced by so many. It commits to support the Paris Agreement on Climate Change, by promoting and facilitating energy efficiency and clean energy. It seeks to increase resilience – to climate change, weather and natural disaster, market volatility and political instability. And it seeks to reduce the pressure of human economic activity on the natural environment by stressing the need not just for habitat and ecosystem protection, but also increased resource use efficiency, and sustainable production and consumption – thereby spreading responsibility for delivering sustainability across all economic players.

The Agenda emphasises the interdependence of many of the goals and targets, and the need for integrated delivery.

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<sup>42</sup> 194 states signed up to the SDGs

Almost all the SDGs and many associated targets (more than 34) are relevant to aquaculture development. Existing guidance and initiatives to promote sustainable aquaculture (including the CCRF, its supporting Technical Guidelines, the Bangkok Declaration & Phuket Consensus, the Blue Growth Initiative) will broadly support delivery of the SDGs. Nonetheless it is arguable that these guidance instruments and initiatives should be strengthened in some key cross-cutting areas, including:

- Poverty alleviation, hunger eradication and creation of decent work
- Leaving no-one behind: equity, human rights, access and opportunity for all (e.g. access to suitable sites, skills, finance, inputs, market intelligence)
- Resource use efficiency and waste
- Resilient aquaculture farming systems
- Genetic resource sharing and conservation
- Fair and productive value chains

Implementing the SDGs also requires that we address several outstanding conceptual and practical challenges including: how to deal with trade-offs between different sustainable development objectives; the nature of environmental capacity or limits to growth; integration and complexity; environmental assessment and precaution; adaptive planning and management systems; human and labour rights; capacity development of institutions; and stakeholder participation and empowerment.

Each of these cross cutting areas and the outstanding conceptual challenges are dealt with in relation to aquaculture in the following sections.

### **7.1 Poverty, hunger, health and well-being, decent work**

Eradication of poverty and hunger lie at the heart of the SDGs. It has been repeatedly demonstrated that aquaculture has high potential to contribute to both hunger eradication and poverty alleviation (see for example Tacon 2000; FAO, 2012a; FAO, 2012e; Weimin, 2009; AFSPAN, 2015; Edwards, 2002; and Halwart et al., 2003), though the extent which potential benefits have been realized in practice is highly uncertain (Halwart et al., 2003). In general, the returns per unit area of land are higher than those from conventional agricultural systems such as rice, and the nutritional qualities of fishery products are exceptional. There are nonetheless issues about the trade-off between food sales and food security, and the capacity of the poor to benefit from aquaculture.

Aquaculture is often complex, high risk and susceptible to failure because of poor design, quality of inputs, disease or weather, water quality, husbandry skills, markets and cash flow. The poor are often least able to cope with these difficulties or access potential markets. If the poor have the support to overcome these problems, and if there is a favourable enabling environment, then aquaculture can be a driver of rapid development and poverty alleviation; if they do not, they may fail, and/or others may ultimately appropriate the benefits. Furthermore, in some cases aquaculture development may even result in a negative impact in terms of food security and nutrition – through the export of high quality nutritional resources from poor communities to wealthy consumers. Furthermore, larger more commercial businesses are usually more efficient in terms of cost of production, and are likely to be the main driver of development and market price in the medium term. These businesses create employment - and potentially decent work – though in most cases much less employment per unit production, or per unit income, than smallholder businesses.

These issues beg the question as to the most desirable aquaculture sector structure, and the corresponding enabling or facilitating environment, needed to deliver the SDGs. This is beyond the scope of this report, but an approach that yields the greatest benefit across all SDGs will be highly context specific (geographic and temporal). Any aquaculture development or management guidance or initiative must assess the likely short, medium and long term consequences of development alternatives – in terms of poverty, food security and nutrition; income and employment/decent work; equity and market opportunity; resource use efficiency and environmental impact; and social, economic and environmental risk. And as part of this it will need to address possible trade-offs between the different SDGs associated with different development trajectories. This is the enormous challenge – and one

which will need to be addressed drawing not just on technical advice, but local knowledge, experience and perspective.

## 7.2 Leaving no one behind: equity and opportunity

The SDGS place strong emphasis on all forms of equity: gender and youth equality; work opportunity; access to productive resources; access to education and training; access to market and market intelligence; migrant rights, labour rights and human rights in general.

Aquaculture development has not always gone hand in hand with increased equity; indeed, new power relations have often developed rapidly in situations where aquaculture was highly profitable, possibly affecting vulnerable communities, and in many situations men have benefitted disproportionately from aquaculture initiatives compared with women.

The SDG framework raises the profile of equity, dignity and human rights in development; and the potential diversity of aquaculture technology and enterprise offers tremendous opportunities for new and more equitable sector or business models.

## 7.3 Resource use efficiency, waste and water resources management

The SDGs place particular emphasis on resource use efficiency and reduced waste, and this in turn is closely related to sustainable production and consumption, and water resources management.

Resource use ratios have always been used in aquaculture to measure productive efficiency and resource use efficiency, the most commonly used of which are land productivity (production (weight)/ha) and food conversion efficiency (food consumed/weight gained). Unfortunately, these have not always been rigorously used (analysts have not always compared like with like) and they also miss a key dimension of resource use efficiency – resource consumption per unit economic benefit – because weight is rarely a useful measure of either cost or benefit. Several of the resource use efficiency indicators used in the SDG framework (e.g. 8.4.1, 8.4.2, 9.4.1) specifically recognize the need for indicators of this type (Box 13). The denominator corresponding to GDP at enterprise level would be *value added*, and appropriate indicators for aquaculture might include, for example net protein, or calorie, or fishmeal consumption per unit of value added; or net water consumption or CO<sub>2</sub> emissions per unit of value added. It is important that a *basket of efficiency indicators* is used. It is often the case that a production system that is highly productive or efficient in terms of land use may be less efficient in terms of other input resources or waste generation - and vice versa - and these systems may in turn perform well or badly in relation to water use efficiency or CO<sub>2</sub> emissions. The weighting applied to these different indicators – formally or informally – is likely to vary according to context and the degree of resource scarcity or waste burden in a particular location.

Water use and chemicals management is closely related to resource use efficiency, and of particular importance for aquaculture development. These issues feature strongly in the SDG indicator set (Box 14). Improved aquaculture development planning and improved aquaculture practices are both required to deliver relevant SDG targets as measured by these indicators.

**Box 13. Some important SDG resource use efficiency indicators of relevance to aquaculture development**

- 6.4.1 Change in water-use efficiency over time
- 6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
- 8.4.1/12.2.1 Material footprint, material footprint per capita, and material footprint per GDP
- 8.4.2/12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
- 9.4.1 CO<sub>2</sub> emission per unit of value added
- 11.3.1 Ratio of land consumption rate to population growth rate
- 12.3.1 Global food loss index
- 12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

Source: IAEG-SDGs. 2016.

<https://unstats.un.org/sdgs/indicators/indicators-list/>

**Box 14: SDG indicators related to water and chemicals**

- 6.3.1 Proportion of wastewater safely treated
- 6.3.2 Proportion of bodies of water with good ambient water quality
- 6.5.1 Degree of integrated water resources management implementation (0–100)
- 6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation
- 6.6.1 Change in the extent of water-related ecosystems over time
- 6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

Source: IAEG-SDGs. 2016.

<https://unstats.un.org/sdgs/indicators/indicators-list/>

**7.4 Resilient aquaculture systems in resilient environments**

Resilience is strongly emphasised in the SDGs (Box 15) and in recent aquaculture related frameworks such as the Ecosystem Approach to Aquaculture and the Blue Growth Initiative. Examination of the SDG framework suggests several dimensions or interpretations of resilience: sustainable buildings and infrastructure resilient to natural disaster; Disaster Risk Reduction (DRR) and similar strategies and response protocols; resilient ecosystems; and resilient agricultural systems. The latter – and perhaps the most relevant to aquaculture - is the subject of target 2.4 and its indicator 2.4.1 *Proportion of agricultural area under productive and sustainable agriculture*. This is rather a weak indicator (and suggests that the meaning of resilience and sustainability are rather similar), but the concept of resilience is nonetheless important.

In the CCRF Technical Guidance on the [ecosystem approach to aquaculture](#), resilience is regarded primarily as a characteristic of the whole interlinked social-ecological system, including *social resilience* that could, for example be related to employment structures, and *ecological resilience* that may be linked to biodiversity and ecosystem processes. It may also be extended to enterprise or economic resilience – the ability of an enterprise or sector to cope with price or cost volatility, shifting market demand, adverse weather or climate change.

The concept is also related to the idea of *environmental capacity and limits to growth*. Both of these assume that the environment can sustain a certain degree of change or degradation yet retain resilience (i.e. it will rebound

**Box 15: SDG resilience targets**

1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

from a shock); but there comes a point (e.g. degree of contamination, or loss of biodiversity) beyond which the system is far less resilient and may suffer steady and irreversible degradation and loss of important ecosystem services.

There is not, as yet, a satisfactory set of indicators to measure these different kinds of resilience or to direct appropriate action. It is commonly suggested that diversity of enterprise (e.g. growing a range of livestock or different fish species) increases economic resilience. While this may be true in the long term, diversity may also be associated with high costs and lack of competitiveness in the short term, and needs to be assessed very carefully. More convincingly perhaps, it can be argued that education is the key to social and economic resilience. With regards to ecological resilience, species and/or habitat diversity is often regarded as an important indicator, but defining the scale at which such diversity should be measured; attributing loss of diversity to a particular kind of enterprise (such as aquaculture); or defining an acceptable level of change are all fraught with difficulty.

## 7.5 Genetic resources conservation and sharing

The Convention on Biological diversity requires the conservation and sustainable use of biological diversity (including genetic diversity), and the fair and equitable sharing of benefits derived from that use. This requirement is mirrored in the SDG targets 2.5 and 15.6 (Box 16).

FAO has developed guidance on this issue within the CCRF framework.<sup>43</sup> This guidance is relatively comprehensive in relation to domestication and genetic improvement, risk and impact assessment, dissemination strategies, and the maintenance, management and conservation of genetic resources; but it does not seek to address in any practical detail the more difficult socio-political aspect of benefit sharing. While this is understandable, there remains a commitment and opportunity to promote more equitable sharing and use of such resources, and it is important that FAO addresses these issues in its programmes.

## 7.6 Fair and productive value chain

The 2030 Agenda specifically promotes aid for trade (8.a) and international trade under WTO rules with minimal barriers to trade (2.b, 14.6, 17.10); and has explicit targets for increased export trade from least developed countries (17.11) and the facilitation of improved market access (17.10). It specifically recognizes the importance of markets in generating increased income for small scale food producers (2.3, 9.3) and more generally the importance of diversification and value addition (8.2, 9.b).

FAO and its partners have historically paid rather less attention to the aquaculture value chain than to aquaculture production, although the emphasis has shifted in favour of a more holistic “value chain approach” in recent years (see for example the COFI:FT paper<sup>44</sup> on the impact of aquaculture supply on trade and consumption). It is self-evident that an approach that addresses all elements of the value chain – from input supply/availability, through production and distribution to market – is essential if resilient aquaculture systems are to be developed and

### Box 16: Targets and indicators for genetic resources

2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed

2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities

2.5.2 Proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction

15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed

15.6.1 Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits

IAEG-SDGs. 2016.

<https://unstats.un.org/sdgs/indicators/indicators-list/>

<sup>43</sup> FAO. 2008: Genetic resource management. Technical Guidelines for Responsible Fisheries. No 5 Aquaculture development. Suppl 3: [www.fao.org/3/a-i0283e.pdf](http://www.fao.org/3/a-i0283e.pdf)

<sup>44</sup> FAO COFI. 2016c. The impact of aquaculture supply on trade and consumption. FAO Committee on Fisheries 15th session. Agadir, Morocco, 22–26 February 2016 COFI:FT/XV/2016/11. [ftp://ftp.fao.org/FI/DOCUMENT/COFI/cofift\\_15/11e.pdf](http://ftp.fao.org/FI/DOCUMENT/COFI/cofift_15/11e.pdf)

sustained. This approach may also help deliver SDG targets related to fair access and opportunity: to the means of production; to skill development and services; to markets.

Fair and productive value chains are not necessarily the shortest or cheapest; rather they are marketing systems that generate employment and value added, and deliver safe and nutritious food. There may be a trade-off between increased value added and employment in the value chain and market price of the product (which should be low from a consumer, and in some cases a poverty/hunger perspective). There may be trade-offs between market price and product quality and safety. And there may be issues of appropriation and lack of competitiveness in otherwise relatively efficient value chains. There may be questions about participation or exclusion of weaker or poorer small-scale producers. These are highly complex and context dependent issues with strong socio-economic, cultural and political dimensions. They cannot be adequately addressed through rapid appraisal and short term value chain analysis consultancies. Projects and programmes need to address these issues on a long term exploratory and adaptive basis, with highly effective engagement of relevant stakeholders.

### 7.7 Outstanding issues and challenges

Despite their apparent rigour, there is still plenty of room for interpretation in the implementation of the SDGs, and there remain several unresolved issues relating to the nature of sustainable development and how it should be realized.

Since the 1970s there have been differing views as to whether we should work to understand, accept and manage *trade-offs between environmental values and development values*; or whether we should insist on the possibility and opportunity for “win-win” solutions: development that is environmentally benign or positive and also generates good “economic returns”. The SDGs appear to accept the inevitability of trade-offs, and the need to recognize and allow for these explicitly in decision making processes.

“*Sustainable intensification*” has entered the aquaculture development vocabulary in recent years, and has arisen in large part due to a recognition that promoting extensive systems as the best solution to meeting the need for both hunger/poverty alleviation and environmental protection has failed to yield significant socio-economic benefits. It also arises from the recognition that demographic change and food consumption habits are creating huge demand for high quality protein products such as fish and meat; and that if we are to protect natural habitat we need to produce more food from less land. Sustainable intensification seeks to be a bit smarter – recognising the reality that intensification is the only way to significantly increase income from a smallholding, while also seeking environmentally friendly forms of intensification – sustainably sourced feeds; integration; integrated pest management; and resource use efficiency. At the larger scale, opportunities such as shellfish culture and/or integrated multi-trophic aquaculture systems and aquaponics are often highlighted.

While these concepts and initiatives are generally commendable, there is a significant environmental challenge associated with intensification of any kind; and while integration may offer a solution in some respects, it presents significant technical, business and economic challenges. Management and marketing both become more complex while technical skills are inevitably diluted. Production and market risk may also increase. While there are undoubtedly opportunities for sustainable intensification, development initiatives need to be driven as much by pragmatism and realism as by idealism and enthusiasm.

Perspectives also differ widely on the nature of “*limits to growth*” and the associated idea of *environmental capacity*. There is a recognition in many policy documents that environmental constraints are not absolute, but interdependent with technology and aspects of social organisation and governance. Nonetheless some ecologists would also argue that there are indeed absolute limits to growth (if extremely difficult to define), and that we have “overshot” these limits precisely because we have resorted to unsustainable technologies – such as near universal use of fertilizers and pesticides in agriculture (to the detriment of biodiversity and some ecosystem services) – to overcome them. The renewed focus on economic growth as the primary means for poverty eradication and human development is likely to bring this dilemma and uncertainty into sharp focus in the period to 2030.

There is also the related problem of *integration and complexity*. From the very outset – and well before the 1972 Stockholm Declaration – there was increasing awareness of the need for greater integration between government departments and policies, and between different stakeholders, to deliver better development planning. Indeed, the early ‘80s saw a proliferation of “integrated development programmes”, and the ‘90s were characterised by “integrated coastal/watershed management” – all designed to address precisely this problem. Success has however always been limited because increased integration means a greater diversity of participant and perspective, and substantial transaction costs to generate agreed solutions. It also implies more complexity – in terms of objectives, targets and indicators to meet the many different needs and perspectives, and procedures to reconcile the various interests. Integration generates meetings which may sometimes gain the ascendancy over development results. The increased focus on *partnership* reinforces these issues. While a wide range of development partners should facilitate integration and shared experience and capacity, it may also lead to debilitating compromise and limited responsibility.

The **precautionary principle** and **environmental assessment**, which were prominent concepts in the Rio Principles and much other guidance on sustainable development, do not figure in the SDGs. This is probably because the 2030 Agenda is an outcome based framework, and recognizes the diversity of contexts and the corresponding diversity of possible approaches to achieving these outcomes. Nonetheless this allows the possibility that the drive for economic growth (SDG 8) will undermine the need for conservation and protection of biodiversity and ecosystem function and climate change mitigation (SDGs 12, 13, 14 and 15). While growth and environmental degradation are not necessarily linked, they usually are, and without the principle of precaution, the balance between the two may swing in favour of growth and degradation. It is to be hoped that initiatives such as Blue Growth – which explicitly recognizes the need to decouple growth from degradation – will be more effective at achieving SDG outcomes than the more negative and difficult to apply precautionary principle.

Similarly, the lack of emphasis on environmental assessment may in the end be a positive change. In many cases Environmental Assessment has become a costly administrative procedure (often without the support of the required monitoring effort) with rather limited impact on sustainable development outcomes. A more outcome based approach may in the end generate more efficient and effective constraints and incentives that result in improved environmental status.

*Adaptive planning and management systems – the enabling environment.* In very general terms, sustainable development for individual enterprises is all about thinking ahead, and thinking widely. It is also about creating an enabling environment within which enterprises will be encouraged to think in this way, and will also be constrained from the short-termism and over-exploitation of natural resources associated with a highly competitive and individualistic free market economy.

Such an enabling environment is likely to include a framework of institutions, regulations, incentives and information that guide, incentivise and adjust economic activity in favour of greater equity and sustainability. Such a framework is unlikely to evolve by itself; it will require strategic planning which consults/engages widely; considers all the possible elements that may be desirable in the enabling environment; promotes or facilitates these elements; assesses success in achieving sustainable development objectives; and adapts the enabling environment as required. Although there is a great deal of guidance on developing such planning frameworks,<sup>45</sup> and applying these to sub-sectors, sectors and entire economies, there are rather few examples that appear to be working well. This is related to both the complexity of the issues and the nature of many governance systems in both developed and less developed countries. An effective strategic plan delivering a responsive enabling environment (or planning and management system) requires a dynamic framework of institutional roles and responsibilities that can act, learn and adapt over the medium term. Most strategic plans are simply one-off glossy documents.

Aquaculture development has tremendous potential to support achievement of the core SDGs: to reduce poverty, improve nutrition and generate decent work. If developed inappropriately it also has potential to undermine many

<sup>45</sup> including CCRF and its supporting technical guidance and the substantial guidance literature that emerged in the late ‘90s and early 2000’s in relation to integrated coastal management and integrated watershed management.

SDGs – for example relating to equity and resource access, or water quality. The key to facilitating sustainable and equitable aquaculture development is an enabling environment that both facilitates opportunity and constrains excess. Such an environment has many dimensions: policy and planning; legal and regulatory frameworks; supportive institutions; access to resources; appropriate infrastructure; economic incentives; finance; access to knowledge and skills; market information... and so on. There is no magic bullet, and every country and region is different. The key is to learn from experience, learn from others, and be responsive and adaptive to new and constantly changing conditions.

## 8. BIBLIOGRAPHY

*Note:* the following documents and resources were accessed during the preparation of this document and broadly informed the analysis. Those that were explicitly used in the analysis are referenced as footnotes in the main text.

- AFSPAN.** 2015. Aquaculture for Food Security, Poverty Alleviation and Nutrition Final Technical Report. <http://cordis.europa.eu/docs/results/289/289760/final1-afspan-final-technical-report.pdf>
- ADB.** 2013. Gender equality and food security – women’s empowerment as a tool against hunger. Mandaluyong City, Philippines: Asian Development Bank. [www.fao.org/wairdocs/ar259e/ar259e.pdf](http://www.fao.org/wairdocs/ar259e/ar259e.pdf)
- Bâc, D.P.** 2008 A history of the concept of sustainable development: literature review. [www.cfr.washington.edu/classes/esrm.458/Paul.%202008.pdf](http://www.cfr.washington.edu/classes/esrm.458/Paul.%202008.pdf)
- Bene, C., Arthur, R., Norbury, H., Allison, E.H., Beveridge, M., Bush, S., Campling, L., Leschen, W., Little, D., Squires, D., Thilsted, S.H., Troell, M. & William, M.** 2016. Contribution of Fisheries and Aquaculture to Food Security and Poverty Reduction: Assessing the Current Evidence. *World Development* Vol. 79, pp. 177–196, 2016 [www.sciencedirect.com/science/article/pii/S0305750X15002892](http://www.sciencedirect.com/science/article/pii/S0305750X15002892)
- Bondad-Reantaso, M.G., Arthur, J.R. & Subasinghe, R.P. eds.** 2008. Understanding and applying risk analysis in aquaculture. FAO Fisheries and Aquaculture Technical Paper. No. 519. <ftp://ftp.fao.org/docrep/fao/011/i0490e/i0490e.pdf>
- Brodie, M. & Wolf, A.** 2013. Planning for Sustainable Aquaculture Tilapia Farming in the United States, China and Honduras. [http://upp.uic.edu/research/Student%20Pages/pdf/bondie\\_wolf\\_project.pdf](http://upp.uic.edu/research/Student%20Pages/pdf/bondie_wolf_project.pdf)
- Brugère, C., Ridler, N., Haylor, G., Macfadyen, G. & Hishamunda, N.** 2010. Aquaculture planning: policy formulation and implementation for sustainable development. FAO Fisheries and Aquaculture Technical Paper. No. 542. [www.fao.org/docrep/012/i1601e/i1601e00.pdf](http://www.fao.org/docrep/012/i1601e/i1601e00.pdf)
- Burney, J.A., Davis, S.J. & Lobell, D.B.** 2010. Greenhouse gas mitigation by agricultural intensification. *Proceedings of the national Academy of Sciences*, 107(26), 12052–12057. [www.pnas.org/content/107/26/12052](http://www.pnas.org/content/107/26/12052)
- Carter, M. & Barrett, C.** 2006. The economics of poverty traps and persistent poverty: An asset-based approach. *Journal of Development Studies*, Taylor & Francis Journals, 42(2), 178-199. [www.tandfonline.com/doi/abs/10.1080/00220388.2013.785527?journalCode=fjds20](http://www.tandfonline.com/doi/abs/10.1080/00220388.2013.785527?journalCode=fjds20)
- CBD.** 2011. Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets. Secretariat of the Convention on Biological Diversity. [www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf](http://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf); [www.cbd.int/sp/targets/default.shtml](http://www.cbd.int/sp/targets/default.shtml)
- Chapman, R. & Slaymaker, T.** 2002. ICTs and rural development: Review of the literature, current interventions and opportunities for action. ODI Working Paper 192. [www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2670.pdf](http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2670.pdf)
- Committee on World Food Security.** 2014. Principles for Responsible Investment in Agriculture and Food Systems. [www.fao.org/3/a-au866e.pdf](http://www.fao.org/3/a-au866e.pdf)
- Corsin, F., Funge-Smith, S. & Clausen, J.** 2007. A qualitative assessment of standards and certification schemes applicable to aquaculture in the Asia-Pacific region. Bangkok, FAO RAP publication 2007/25. <ftp://ftp.fao.org/docrep/fao/010/ai388e/ai388e00.pdf>
- Costa-Pierce, B.** 2010. Sustainable Ecological Aquaculture Systems: The Need for a New Social Contract for Aquaculture Development. *Marine Technology Society Journal* May 2010. pp 88-112. [www.ingentaconnect.com/content/mts/mts/2010/00000044/00000003/art00009](http://www.ingentaconnect.com/content/mts/mts/2010/00000044/00000003/art00009)
- da Silva, J.G., Del Grossi, M.E. & de França, C.G.** 2011. *The Fome Zero (Zero Hunger) program. The Brazilian experience.* Ministry of Agrarian Development. Brasilia. [www.fao.org/docrep/016/i3023e/i3023e.pdf](http://www.fao.org/docrep/016/i3023e/i3023e.pdf)

- Edwards, P.** 2002. Aquaculture for poverty alleviation and food security. *Aquaculture Asia Magazine* April-June 2002 (Vol. VII No. 2) <http://library.enaca.org/NACA-Publications/AquacultureForPovertyAlleviationAndFood.pdf.pdf>
- FAO Technical Guidelines for Responsible Fisheries.** [www.fao.org/fishery/topic/166294/en](http://www.fao.org/fishery/topic/166294/en)
- FAO.** 1988. Report of the FAO Council, 94th Session, 1988. Rome. [www.fao.org/docrep/meeting/011/t0087e/T0087E00.htm](http://www.fao.org/docrep/meeting/011/t0087e/T0087E00.htm)
- FAO.** 1995. Code of Conduct for Responsible Fisheries. [www.fao.org/3/a-v9878e.pdf](http://www.fao.org/3/a-v9878e.pdf)
- FAO.** 1996. Integration of fisheries into coastal area management. Technical Guidelines for Responsible Fisheries 3. [ftp://ftp.fao.org/docrep/fao/003/W3593e/W3593e00.pdf](http://ftp.fao.org/docrep/fao/003/W3593e/W3593e00.pdf)
- FAO.** 2008. Genetic resource management. Technical Guidelines for Responsible Fisheries. No 5 Aquaculture development. Suppl 3: [www.fao.org/3/a-i0283e.pdf](http://www.fao.org/3/a-i0283e.pdf)
- FAO.** 2009a. International Treaty on Plant Genetic Resources for Food and Agriculture. [ftp://ftp.fao.org/docrep/fao/011/i0510e/i0510e.pdf](http://ftp.fao.org/docrep/fao/011/i0510e/i0510e.pdf)
- FAO.** 2009b. Conference. Strategic Framework 2010-2019. C 2009/3 Rome 18-23<sup>rd</sup> November 2009 [www.fao.org/docrep/meeting/029/k5864e01.pdf](http://www.fao.org/docrep/meeting/029/k5864e01.pdf)
- FAO.** 2010a. Ecosystem Approach to Aquaculture. Technical Guidelines for Responsible Fisheries 5. Suppl.4. [www.fao.org/docrep/013/i1750e/i1750e.pdf](http://www.fao.org/docrep/013/i1750e/i1750e.pdf)
- FAO.** 2010b. Report of the Expert Consultation to Develop an FAO Evaluation Framework to Assess the Conformity of Public and Private Ecolabelling Schemes with the FAO Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries. Rome, 24–26 November 2010. *FAO Fisheries and Aquaculture Report*. No. 958. Rome, FAO. 2011. 51p. [www.fao.org/docrep/013/i2021e/i2021e00.pdf](http://www.fao.org/docrep/013/i2021e/i2021e00.pdf)
- FAO.** 2011a. Technical Guidelines on Aquaculture Certification. [www.fao.org/3/a-i2296t.pdf](http://www.fao.org/3/a-i2296t.pdf); [www.fao.org/docrep/015/i2296t/i2296t00.htm](http://www.fao.org/docrep/015/i2296t/i2296t00.htm)
- FAO.** 2011b. The State of the World’s Land and Water Resources for Food and Agriculture. Managing systems at risk. Rome. [www.fao.org/docrep/015/i1688e/i1688e00.pdf](http://www.fao.org/docrep/015/i1688e/i1688e00.pdf)
- FAO.** 2011c. Save and Grow: A policymaker’s guide to sustainable intensification of smallholder crop production. Rome. [www.fao.org/docrep/014/i2215e/i2215e.pdf](http://www.fao.org/docrep/014/i2215e/i2215e.pdf)
- FAO.** 2011d. Current world fertilizer trends and outlook to 2015. Rome. [ftp://ftp.fao.org/ag/agp/docs/cwfto15.pdf](http://ftp.fao.org/ag/agp/docs/cwfto15.pdf)
- FAO.** 2011e. The State of Food and Agriculture 2010-2011: *Women in agriculture*. Rome. [www.fao.org/docrep/013/i2050e/i2050e00.htm](http://www.fao.org/docrep/013/i2050e/i2050e00.htm)
- FAO** 2011f. “Energy-smart” food for people and climate. Issue Paper. [www.fao.org/docrep/014/i2454e/i2454e00.pdf](http://www.fao.org/docrep/014/i2454e/i2454e00.pdf)
- FAO.** 2012a. Contribution of commercial aquaculture to poverty alleviation and food security: an assessment framework [www.fao.org/docrep/012/i0974e/i0974e03.pdf](http://www.fao.org/docrep/012/i0974e/i0974e03.pdf)
- FAO.** 2012b. Global forest products facts and figures 2012. Rome. [www.fao.org/forestry/statistics/80938/en/](http://www.fao.org/forestry/statistics/80938/en/)
- FAO.** 2012c. Sustainable nutrition security. Restoring the bridge between agriculture and health. Rome. [www.fao.org/docrep/017/me785e/me785e.pdf](http://www.fao.org/docrep/017/me785e/me785e.pdf)
- FAO.** 2012d. Towards the future we want. End hunger and make the transition to sustainable agricultural and food systems. Rome. [www.fao.org/docrep/015/an894e/an894e00.pdf](http://www.fao.org/docrep/015/an894e/an894e00.pdf)
- FAO.** 2012e. The State of World Fisheries and Aquaculture 2012. Rome. [www.fao.org/docrep/016/i2727e/i2727e00.htm](http://www.fao.org/docrep/016/i2727e/i2727e00.htm)
- FAO** 2013a. Conference. Reviewed Strategic Framework. C 2013/7. Rome 2013. [www.fao.org/docrep/meeting/027/mg015e.pdf](http://www.fao.org/docrep/meeting/027/mg015e.pdf)
- FAO.** 2013b. The Director-General’s Medium Term Plan 2014-17 and Programme of Work and Budget 2014–15. Rome. [www.fao.org/docrep/meeting/027/mf490e.pdf](http://www.fao.org/docrep/meeting/027/mf490e.pdf)
- FAO.** 2013c. Save and Grow: Cassava. A guide to sustainable crop production intensification. Rome. [www.fao.org/docrep/018/i3278e/i3278e.pdf](http://www.fao.org/docrep/018/i3278e/i3278e.pdf)
- FAO.** 2013d. Resilient Livelihoods – Disaster Risk Reduction for Food and Nutrition Security. [www.fao.org/3/a-i3270e.pdf](http://www.fao.org/3/a-i3270e.pdf)
- FAO.** 2014. Building a common vision for food and agriculture: Principles and Approaches. Rome 2014. [www.fao.org/3/a-i3940e.pdf](http://www.fao.org/3/a-i3940e.pdf)
- FAO.** 2015a. FAO and the 17 Sustainable Development Goals. <https://sustainabledevelopment.un.org/content/documents/2205FAO%20and%20the%2017%20SDGs.pdf>

- FAO 2015b. Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication. [www.fao.org/3/a-i43556e.pdf](http://www.fao.org/3/a-i43556e.pdf)
- FAO. 2015c. Sustainable land management. [www.fao.org/3/a-i4593e.pdf](http://www.fao.org/3/a-i4593e.pdf)
- FAO. 2016a. The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all. Rome. 200 pp. [www.fao.org/3/a-i5555e.pdf](http://www.fao.org/3/a-i5555e.pdf)
- FAO. 2016b. Food and Agriculture – Key to key to achieving the 2030 Agenda for Sustainable Development. [www.fao.org/3/a-i5499e.pdf](http://www.fao.org/3/a-i5499e.pdf)
- FAO. 2016c. How to place food and agriculture in the SDGs on the national planning menu. A 10 point Guide. [www.fao.org/3/a-i6111e.pdf](http://www.fao.org/3/a-i6111e.pdf)
- FAO. 2016d. Voluntary Guidelines for Sustainable Soil Management. [www.fao.org/3/a-bl813e.pdf](http://www.fao.org/3/a-bl813e.pdf)
- FAO. 2016e. Reviewed Strategic Framework and Outline of the Medium Term Plan 2018-21. CL 155/3 [www.fao.org/3/a-mr830e.pdf](http://www.fao.org/3/a-mr830e.pdf)
- FAO. 2016f. FAO and the Sustainable Development Goals. [www.fao.org/3/a-i4997e.pdf](http://www.fao.org/3/a-i4997e.pdf)
- FAO. 2016g. Blue Economy and increasing economic benefits for SIDS and LDCs from sustainable management of marine resources (Informal Preparatory Working Group (SDG 14, target 14.7) Unpublished Report.
- FAO. 2016h. Blue Growth Initiative – Discussion Papers. Discussion paper 1: Fundamentals; Discussion paper 2: Theory of Change. Unpublished Documents.
- FAO. 2016i. Scoping study on decent work and employment in fisheries and aquaculture: issues and actions for discussion and programming. Knowledge Materials. [www.fao.org/3/a-i5980e.pdf](http://www.fao.org/3/a-i5980e.pdf)
- FAO. 2017. FAO and the SDGs. Indicators – Measuring up to the 2030 Agenda for Sustainable Development. [www.fao.org/3/a-i6919e.pdf](http://www.fao.org/3/a-i6919e.pdf)
- FAO. COAG. 2016. Agriculture and the 2030 Agenda for Sustainable Development. 25th Session of the Committee on Agriculture. COAG/2016/4. [www.fao.org/3/a-mr022e.pdf](http://www.fao.org/3/a-mr022e.pdf)
- FAO, COFI. 2015a. Towards establishing a strategic framework for strengthening the role of the sub-committee on aquaculture in advancing aquaculture development. COFI Sub-committee on Aquaculture. Eighth Session. COFI:AQ/VIII/2015/5 [www.fao.org/cofi/43341-04a74a5d167de0034251e8eaf83de443e.pdf](http://www.fao.org/cofi/43341-04a74a5d167de0034251e8eaf83de443e.pdf)
- FAO, COFI. 2015b. Improving livelihoods through decent employment in aquaculture. COFI Sub-committee on Aquaculture. Eighth Session. COFI:AQ/VIII/2015/9 [www.fao.org/cofi/30797-0bb019f2e2a73b99f0bbe0010ca41ec41.pdf](http://www.fao.org/cofi/30797-0bb019f2e2a73b99f0bbe0010ca41ec41.pdf)
- FAO, COFI. 2015c. FAOs Blue Growth Initiative and Aquaculture. COFI Sub-committee on Aquaculture. Eighth Session. COFI:AQ/VIII/2015/7 [www.fao.org/cofi/30795-045b188b4c734e56986ed853cfb667a88.pdf](http://www.fao.org/cofi/30795-045b188b4c734e56986ed853cfb667a88.pdf)
- FAO, COFI. 2015d. Report of the Eighth Session of the COFI Sub-committee on Aquaculture. Brasilia, Brazil, 5–9 October 2015. FIRA/R1131 (Tri). [www.fao.org/3/a-i5191t.pdf](http://www.fao.org/3/a-i5191t.pdf)
- FAO, COFI. 2016a. Agenda 2030, Sustainable development goals and fisheries and aquaculture. COFI/2016/Inf.20. [www.fao.org/3/a-mq652e.pdf](http://www.fao.org/3/a-mq652e.pdf)
- FAO, COFI. 2016b. FAO's Programme of Work in Fisheries and Aquaculture under the FAO Strategic Framework. COFI/2016/9 [www.fao.org/3/a-mq949e.pdf](http://www.fao.org/3/a-mq949e.pdf)
- FAO, COFI. 2016c. The impact of aquaculture supply on trade and consumption. COFI Sub-Committee on Fish Trade; 15th Session. Agadir, Morocco, 22–26 February 2016 COFI:FT/XV/2016/11. [ftp://ftp.fao.org/FI/DOCUMENT/COFI/cofift\\_15/11e.pdf](ftp://ftp.fao.org/FI/DOCUMENT/COFI/cofift_15/11e.pdf)
- FAO, COFI. 2016d. COFI Sub-Committee on Fish Trade. Report of the fifteenth session, Agadir, Morocco, February 2016. [www.fao.org/3/a-i5580t.pdf](http://www.fao.org/3/a-i5580t.pdf)
- FAO & Committee on World Food Security. 2012. Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security. [www.fao.org/docrep/016/i2801e/i2801e.pdf](http://www.fao.org/docrep/016/i2801e/i2801e.pdf)
- FAO, IFAD & WFP. 2013. The State of Food Insecurity in the World 2013. The multiple dimensions of food security. Rome. [www.fao.org/docrep/018/i3434e/i3434e.pdf](http://www.fao.org/docrep/018/i3434e/i3434e.pdf)
- FAO, IFAD & WFP. 2015. Achieving Zero Hunger: the critical role of investments in social protection and agriculture. Rome, FAO [www.fao.org/3/a-i4777e.pdf](http://www.fao.org/3/a-i4777e.pdf)
- FAO & JRC. 2012. Global forest land-use change 1990–2005, by E.J. Lindquist, R. D'Annunzio, A. Gerrand, K. MacDicken, F. Achard, R. Beuchle, A. Brink, H.D. Eva, P. Mayaux, J. San-Miguel-Ayanz & H-J. Stibig. FAO Forestry Paper No. 169. Food and Agriculture Organization of the United Nations and European Commission Joint Research Centre. Rome, FAO. [www.fao.org/docrep/017/i3110e/i3110e.pdf](http://www.fao.org/docrep/017/i3110e/i3110e.pdf)

- FAO/NACA.** 2001. Bangkok Declaration and Strategy for aquaculture development beyond 2000. Aquaculture in the Third Millennium. [www.fao.org/docrep/003/AB412E/ab412e28.htm](http://www.fao.org/docrep/003/AB412E/ab412e28.htm)
- FAO/NACA.** 2012a. Farming the Waters for People and Food. R.P. Subasinghe, J.R. Arthur, D.M. Bartley, S.S. De Silva, M. Halwart, N. Hishamunda, C.V. Mohan & P. Sorgeloos, (Eds.) Proceedings of the Global Conference on Aquaculture 2010, Phuket, Thailand. 22–25 September 2010. FAO, Rome and NACA, Bangkok. 896 pp. [www.fao.org/docrep/015/i2734e/i2734e00.htm](http://www.fao.org/docrep/015/i2734e/i2734e00.htm)
- FAO/NACA.** 2012b. The Phuket Consensus, Part IV. In: *Farming the Waters for People and Food*. R.P. Subasinghe, J.R. Arthur, D.M. Bartley, S.S. De Silva, M. Halwart, N. Hishamunda, C.V. Mohan & P. Sorgeloos, (Eds.) Proceedings of the Global Conference on Aquaculture 2010, Phuket, Thailand. 22–25 September 2010. FAO, Rome and NACA, Bangkok. 896 pp. [www.fao.org/docrep/015/i2734e/i2734e07.pdf](http://www.fao.org/docrep/015/i2734e/i2734e07.pdf)
- Fehling, M., Nelson, B.D. & Venkatapuram, S.** 2013. Limitations of the Millennium Development Goals: a literature review. *Global Public Health*, 2013 Vol. 8, No. 10, 1109–1122, <http://dx.doi.org/10.1080/17441692.2013.845676>
- Foresight, U.K.** 2011. The future of food and farming: Challenges and choices for global sustainability. Government Office for Science, Foresight, Final Project Report. [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/288329/11-546-future-of-food-and-farming-report.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/288329/11-546-future-of-food-and-farming-report.pdf)
- GESAMP (IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection).** 2001. Planning and management for sustainable coastal aquaculture development. Rep.Stud.GESAMP, (68): 90 p. [www.fao.org/3/a-y1818e.pdf](http://www.fao.org/3/a-y1818e.pdf)
- Halwart, M., Funge-Smith, S. & Moehl, J.** 2003. The Role of Aquaculture in Rural Development. Review of the state of world aquaculture. *FAO Fisheries Circular*. No. 886, Rev.2 [www.fao.org/3/a-y4490e/y4490e04.pdf](http://www.fao.org/3/a-y4490e/y4490e04.pdf)
- Halwart, M. & Gupta, M.V. eds.** 2004. Culture of fish in rice fields. FAO and The WorldFish Center, 83p. [www.fao.org/docrep/015/a0823e/a0823e00.htm](http://www.fao.org/docrep/015/a0823e/a0823e00.htm)
- High-Level Task Force on the Global Food Security Crisis.** 2012. Zero Hunger Challenge. [www.un-foodsecurity.org/](http://www.un-foodsecurity.org/)
- HLPE.** 2014. Food losses and waste in the context of sustainable food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome 2014. [www.un.org/en/zerohunger/pdfs/HLPE\\_FLW\\_Report-8\\_EN.pdf](http://www.un.org/en/zerohunger/pdfs/HLPE_FLW_Report-8_EN.pdf)
- HLPF.** The UN High-level Political Forum on Sustainable Development, <https://sustainabledevelopment.un.org/hlpf>
- Holling, C.S.** 2000. Theories for sustainable futures. *Ecology and society*. 4(2):7. [www.consecol.org/vol4/iss2/art7](http://www.consecol.org/vol4/iss2/art7)
- IAEG-SDGs.** 2016. Report of the Inter-agency and Expert Group on Sustainable Development Goal Indicators. Note by the Secretary-General. E/CN.3/2017/2. <https://unstats.un.org/unsd/statcom/48th-session/documents/2017-2-IAEG-SDGs-E.pdf>; <https://unstats.un.org/sdgs/indicators/indicators-list/>
- IFAD.** 1999. Good governance: an overview. IFAD Executive Board 66th Session. Rome 8-9/09/1999: 10p. [www.ifad.org/gbdocs/eb/67/e/EB-99-67-INF-4.pdf](http://www.ifad.org/gbdocs/eb/67/e/EB-99-67-INF-4.pdf)
- IIED.** 2016. Fisheries Policy and Planning Briefing. Issue December 2016. International Institute for Environment and Development. <http://pubs.iied.org/pdfs/17411IIED.pdf>
- IPCC.** 2012. Managing the risks of extreme events and disasters to advance climate change adaptation. Special report of the Intergovernmental Panel on Climate Change. [www.ipcc.ch/pdf/special-reports/srex/SREX\\_Full\\_Report.pdf](http://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf)
- Jia, J.** 2012. Global aquaculture development since 2000: progress made in implementing the Bangkok Declaration and Strategy for Aquaculture Development beyond 2000, Keynote Address 2. In R.P. Subasinghe, J.R. Arthur, D.M. Bartley, S.S. De Silva, M. Halwart, N. Hishamunda, C.V. Mohan & P. Sorgeloos, eds. Farming the Waters for People and Food. Proceedings of the Global Conference on Aquaculture 2010, Phuket, Thailand. 22–25 September 2010. pp. 21–29. FAO, Rome and NACA, Bangkok. [www.fao.org/docrep/015/i2734e/i2734e00.htm](http://www.fao.org/docrep/015/i2734e/i2734e00.htm)
- Lal, R.** 2004. Soil carbon sequestration impacts on global climate change and food security. *Science* 304:1623. <http://science.sciencemag.org/content/304/5677/1623>

- McCarthy, D., Donald, P., Scharlemann, J., Buchanan, G., Balmford, A., Green, J., Bennun, L., Burgess, N., Fishpool, L., Garnett, S., Leonard, D., Maloney, R., Morling, P., Schaefer, M., Symes, A., Wiedenfeld, D. & Butchart, S. 2012. Financial costs of meeting global biodiversity conservation targets: current spending and unmet needs. *Science* 338.6109: 946–949.
- OECD/FAO. 2016. OECD-FAO Guidance for Responsible Agricultural Supply Chains. OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264251052-en>
- OECD/FAO. 2015. OECD-FAO Agricultural Outlook 2015. OECD Publishing, Paris. [http://dx.doi.org/10.1787/agr\\_outlook-2015-en](http://dx.doi.org/10.1787/agr_outlook-2015-en)
- OHCHR. 2016. *Transforming our world. Human rights in the 2030 Agenda for Sustainable Development*. Available at: [www.ohchr.org/Documents/Issues/MDGs/Post2015/TransformingOurWorld.pdf](http://www.ohchr.org/Documents/Issues/MDGs/Post2015/TransformingOurWorld.pdf); [www.ohchr.org/Documents/Issues/MDGs/Post2015/SDG\\_HR\\_Table.pdf](http://www.ohchr.org/Documents/Issues/MDGs/Post2015/SDG_HR_Table.pdf)
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F.S., Lambin, E.F., Lenton, T.M., Scheffer, M., Folke, C., Schellnhuber, H.J., Nykvist, B., de Wit, C.A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R.W., Fabry, V.J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P. & Foley, J.A. 2009. A safe operating space for humanity. *Nature*, 461(7263), 472–475. SDG knowledge hub <http://sdg.iisd.org/>
- Subasinghe, R.P., Arthur, J.R., Bartley, D.M., De Silva, S.S., Halwart, M., Hishamunda, N., Mohan, C.V. & Sorgeloos, P. 2010. Farming the Waters for People and Food. Proceedings of the global conference on Aquaculture 2010. [www.fao.org/docrep/015/i2734e/i2734e00.htm](http://www.fao.org/docrep/015/i2734e/i2734e00.htm)
- Tacon A.G.J. 2000. Increasing the Contribution of Aquaculture for Food Security and Poverty Alleviation. In: Aquaculture in the Third Millennium. Bangkok. Conference Proceedings. [www.fao.org/docrep/003/ab412e/ab412e30.htm](http://www.fao.org/docrep/003/ab412e/ab412e30.htm)
- Thomas, C.D., Cameron, A., Green, R.E., Bakkenes, M., Beaumont, L.J., Collingham, Y.C. & Hannah, L. 2004. Extinction risk from climate change. *Nature*, 427(6970), 145–148.
- Toth, F.L. 2001. Participatory integrated assessment methods. An assessment of their usefulness to the European Environmental Agency (EEA). EEA. Copenhagen. Technical Report, 64: 82.
- UN Millennium Project. 2005. Investing in Development: A practical plan to achieve the UN Millennium Development Goals. Report to the UN Secretary General. <http://unmillenniumproject.org/documents/overviewEngi-1LowRes.pdf>
- UN. 1972. Report of the United Nations Conference on the Human Environment. Stockholm, 5-16 June 1972. A/CONF.48/14/Rev.1. [www.un-documents.net/aconf48-14r1.pdf](http://www.un-documents.net/aconf48-14r1.pdf)
- UN. 1992a. Rio Declaration on Environment and Development. Report of the United Nations Conference on Environment and Development. A/CONF.151/26 (Vol.I). [www.un.org/documents/ga/conf151/aconf15126-1annex1.htm](http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm)
- UN. 1992b. Convention on Biological Diversity. <https://www.cbd.int/doc/legal/cbd-en.pdf>
- UN. 2000. United Nations Millennium Declaration. Resolution by the General Assembly. A/RES/55/2. [www.un.org/millennium/declaration/ares552e.pdf](http://www.un.org/millennium/declaration/ares552e.pdf)
- UN. 2005. Chapter 10: Restore and conserve the natural resources essential for food security. Millennium Project Task Force on Hunger. p. 171–183. [www.unmillenniumproject.org/documents/Hunger-lowres-complete.pdf](http://www.unmillenniumproject.org/documents/Hunger-lowres-complete.pdf)
- UN. 2012a. Report of the United Nations Conference on Sustainable Development. Rio de Janeiro, Brazil, 20–22 June 2012. <https://sustainabledevelopment.un.org/index.php?page=view&type=111&nr=1358&menu=35>
- UN. 2012b. The Future We Want. Resolution adopted by the General Assembly. [http://icriforum.org/sites/default/files/UNGA\\_the\\_future\\_we\\_want.pdf](http://icriforum.org/sites/default/files/UNGA_the_future_we_want.pdf)
- UN. 2013. World Population Prospects: The 2010 Revision and World Urbanization Prospects: The 2011 Revision. [http://esa.un.org/unpd/wup/unup/index\\_panel1.html](http://esa.un.org/unpd/wup/unup/index_panel1.html)
- UN. 2015a. Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. A/RES/70/1. [www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E); <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>
- UN. 2015b. Addis Ababa Action Agenda of the Third International Conference on Financing for Development. [www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA\\_Outcome.pdf](http://www.un.org/esa/ffd/wp-content/uploads/2015/08/AAAA_Outcome.pdf)

- UN. 2015c. General Assembly Sixty-ninth session. Agenda item 18. Resolution adopted by the General Assembly on 27 July 2015. Addis Ababa Action Agenda of the Third International Conference on Financing for Development (Addis Ababa Action Agenda) United Nations A/RES/69/313. <http://undocs.org/A/RES/69/313>
- UN. 2015d. The Addis Ababa Action Agenda of the Third International Conference on Financing for Development. A global framework for financing development post-2015. Draft outcome document. [www.un.org/esa/ffd/ffd3/wp-content/uploads/sites/2/2015/07/Addis-Ababa-Action-Agenda-Draft-Outcome-Document-7-July-2015.pdf](http://www.un.org/esa/ffd/ffd3/wp-content/uploads/sites/2/2015/07/Addis-Ababa-Action-Agenda-Draft-Outcome-Document-7-July-2015.pdf)
- UN **Framework Convention on Climate Change**. 2015. *Adoption of the Paris Agreement* [online]. FCCC/CP/2015/L.9/Rev.1. <http://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf>; <http://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf>; [http://unfccc.int/files/essential\\_background/convention/application/pdf/english\\_paris\\_agreement.pdf](http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf); [http://unfccc.int/paris\\_agreement/items/9485.php](http://unfccc.int/paris_agreement/items/9485.php)
- UNCDD. 2013. Desertification, land degradation & drought (DLDD) – Some global facts and figures. <http://www.unccd.int/Lists/SiteDocumentLibrary/WDCD/DLDD%20Facts.pdf>
- UNCED. 1992. Agenda 21, the United Nations Programme of Action from Rio. pp. 3–14. <https://sustainabledevelopment.un.org/outcomedocuments/agenda21>; <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>
- UNDG. 2017a. United Nations Development Assistance Framework Guidance. 44p. [https://undg.org/wp-content/uploads/2017/05/2017-UNDAF\\_Guidance\\_01-May-2017.pdf](https://undg.org/wp-content/uploads/2017/05/2017-UNDAF_Guidance_01-May-2017.pdf)
- UNDG. 2017b. Mainstreaming the 2030 Agenda for Sustainable Development. Reference Guide to UN Country Teams (March 2017 Update). United Nations Development Group. 137 p. <https://undg.org/wp-content/uploads/2017/03/UNDG-Mainstreaming-the-2030-Agenda-Reference-Guide-2017.pdf>; <https://undg.org/document/mainstreaming-the-2030-agenda-for-sustainable-development-reference-guide-for-un-country-teams/>
- Vance, C.P. 2001. Symbiotic nitrogen fixation and phosphorus acquisition. Plant nutrition in a world of declining renewable resources. *Plant physiology*, 127: 390-397.
- Van Huylenbroeck, G., Vandermeulen, V., Mettepenningen, E. & Verspecht, A. 2007. Multifunctionality of agriculture: a review of definitions, evidence and instruments. *Living Reviews in Landscape research*, 1:1–38.
- Viala, E. 2008. Water for food, water for life a comprehensive assessment of water management in agriculture. *Irrigation and Drainage Systems*, 22(1), 127–129.
- WCED. 1987. *Our Common Future*. Ed. Gro Harlem Brundtland. World Commission on Environment and Development. [www.un-documents.net/our-common-future.pdf](http://www.un-documents.net/our-common-future.pdf)
- Weimin, M. 2009. Contributions of Aquaculture Industry to Food Security and Poverty Alleviation. EAS Congress 2009. Theme 5: Food Security and Livelihood Management Workshop 1: Mainstreaming Aquaculture into the Integrated Coastal Management Framework [www.pemsea.org/eascongress/international-conference/presentation\\_t5-1\\_weimin.pdf](http://www.pemsea.org/eascongress/international-conference/presentation_t5-1_weimin.pdf)
- Wheeler, T. & von Braun, J. 2013. Climate change impacts on global food security. *Science*, 341(6145), 508–513.
- World Bank. 2003. *World Development Report 2004: Making Services Work for Poor People*. World Bank. World Bank. <https://openknowledge.worldbank.org/handle/10986/5986>
- World Bank. 2008. *World Development Report 2008. Agriculture for development*. [http://siteresources.worldbank.org/INTWDR2008/Resources/WDR\\_00\\_book.pdf](http://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf)
- World Bank & FAO. 2009. *The sunken billions: the economic justification for fisheries reform*. Advance edition. Washington, DC. <http://siteresources.worldbank.org/EXTARD/Resources/336681-1224775570533/SunkenBillionsFinal.pdf>

Indicators for which FAO is “custodian agency”<sup>46</sup>

Target	SDG Target	Indicator
2.1	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.	2.1.1 Prevalence of undernourishment 2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)
2.3	By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.	2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size 2.3.2 Average income of small-scale food producers, by sex and indigenous status
2.4	By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.	2.4.1 Proportion of agricultural area under productive and sustainable agriculture
2.5	By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.	2.5.1 Number of plant and animal genetic resources for food and agriculture secured in medium or long term conservation facilities 2.5.2 Proportion of local breeds, classified as being at risk, not-at risk or unknown level of risk of extinction
2.a	Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.	2.a.1 The agriculture orientation index for government expenditures
2.c	Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.	2.c.1 Indicator of (food) price anomalies
5.a	Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws.	5.a.1 (a) Percentage of people with ownership or secure rights over agricultural land (out of total agricultural population), by sex and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure 5.a.2 Percentage of countries where the legal framework (including customary law) guarantees women’s equal rights to land ownership and/or control
6.4	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.	6.4.1 Change in water use efficiency over time 6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
12.3	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1 Global food loss index

<sup>46</sup> [FAO. 2017. FAO and the SDGs. Indicators – Measuring up to the 2030 Agenda for Sustainable Development. \(www.fao.org/3/a-i6919e.pdf\)](http://www.fao.org/3/a-i6919e.pdf)

Target	SDG Target	Indicator
14.4	By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	14.4.1 Proportion of fish stocks within biologically sustainable levels
14.6	By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.	14.6.1 Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing
14.7	By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries
14.b	Provide access for small-scale artisanal fishers to marine resources and markets	14.b.1 Progress by countries in adopting and implementing a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries
15.1	By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	15.1.1 Forest area as a percentage of total land area FAO
15.2	By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management FAO
15.3	By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	15.3.1 Percentage of land that is degraded over total land area
15.4	By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	15.4.2 Mountain Green Cover Index FAO

### Some relevant institutions, initiatives, approaches and tools

*Note.* This provides examples; it does not seek to be comprehensive.

#### Intergovernmental instruments, conference commitments and international agendas related to the SDGs

Instruments and agendas	Acronym or abbreviation	Comment
Stockholm Declaration on the Human Environment 1972		1972 Conference which articulated the first set of international commitments to sustainable development
World Commission on Environment and Development 1987	WCED 1987, Brundtland report	Built on what had been achieved in Stockholm, and in 1987 published its report “ <b>Our Common Future</b> ”
United Nations Conference on Environment and Development Rio 1992	Rio; UNCED; Earth Summit	<b>Rio Declaration on Environment and Development</b> , and the <b>Statement of Principles for the Sustainable Management of Forests</b> , which were adopted by more than 178 Governments
United Nations Millennium Declaration New York 2000	MDGs	Millennium Development Goals
International Treaty on Plant Genetic Resources for Food and Agriculture 2001	ITPGRFA	Binding international agreement specifically dealing with the sustainable management of plant genetic resources for food and agriculture (PGRFAs). ITPGRFA is a key mechanism to attaining SDG Goals 2 and 15
Second International Conference on Nutrition and Rome Declaration	ICN2; DNFA	High-level intergovernmental meeting (Rome 2014) that focused global attention on addressing malnutrition in all its forms. Adopted the <b>Rome Declaration on Nutrition</b> , and the <b>Framework for Action</b> , whereby world leaders renewed their commitments to establish and implement policies aimed at eradicating malnutrition and transforming food systems to make nutritious diets available to all.
World Summit on Sustainable Development Johannesburg, 2002	WSSD Rio+10	The <b>Johannesburg Declaration on Sustainable Development</b> was a restatement of commitment to Sustainable Development, but with more emphasis the political/social/economic conditions required to achieve sustainable development.
Hyogo Framework for Action	HFA	A 10-year plan to make the world safer from natural hazards. It was endorsed by the UN General Assembly in the Resolution A/RES/60/195 following the 2005 World Disaster Reduction Conference.
Aichi Biodiversity Targets 2010	Aichi	Agreed within the <b>Convention on Biological Diversity (CBD)</b> . Several Aichi Biodiversity Targets have been integrated within SDGs 2, 14 and 15. A 2016 Expert Meeting on improving progress reporting and working towards implementation of <b>Aichi Biodiversity Target 6</b> (sustainable management of fish and invertebrate stocks) developed a draft conceptual framework for reporting on achievement re Target 6. Also promoted improved coordination among the CBD, FAO and Regional Fishery Bodies (RFBs.)
“The Future we want”. 2012	Rio + 20	Member States decided to launch a process to develop a set of <b>Sustainable Development Goals (SDGs)</b> , building on the <b>Millennium Development Goals</b> and converge with the post 2015 development agenda.

Instruments and agendas	Acronym or abbreviation	Comment
Addis Ababa Action Agenda 2015	AAAA	A global framework for financing development post 2015. Envisages public investment in social protection alongside public and private investment in productive sectors, with strong emphasis on agriculture and rural development.
Framework Convention on Climate Change. Adoption of the <b>Paris Agreement</b> 2015	Paris Agreement (COP21)	Addresses greenhouse gases emissions mitigation, adaptation and finance starting in the year 2020.
Conference of Parties to CITES 2016	CITES COP 17	Seventeenth session of the Conference of the Parties of CITES September 2016 Johannesburg
Conference of the Parties to the Framework Convention on Climate Change 2016	UNFCCC COP 22	Most recent conference in climate change. Marrakech November 2016
Sendai Framework for Disaster Risk Reduction 2015	SFDRR	15-year voluntary non-binding agreement endorsed by the UN General Assembly in 2015. It aims to build the resilience of nations and communities to disasters such as floods, drought and storms, and transboundary threats while promoting a people-centred, multisector and multi-hazard approach
Decent Work Agenda 2006	DWA	ILO initiative became integral to SDGs in September 2015 (UN General Assembly). The Agenda has 4 pillars: employment creation, social protection, rights at work, and social dialogue; with gender equality a cross-cutting theme. Broadly aims to achieve fair globalization and poverty reduction. Key to delivery of SDG 8.
<b>2030 Agenda for Sustainable Development</b> 2015	SDGs	The subject of this report
CBD 13 <sup>th</sup> Meeting, Cancu, Mexico. December 2016	COP13	<b>Cancun Declaration.</b> biodiversity protection must involve different governmental and economic sectors and not just environment ministries. Also...113 companies made a collective commitment to take biodiversity considerations into account in their decision-making and invest in biodiversity protection.

### Key institutions overseeing and supporting implementation of the SDGs

Economic and Social Council	ECOSOC	UN Body that oversees UN sustainability initiatives and commitments
High Level Political Forum (SDGs)	HLPF	Central platform for follow-up and review of the 2030 agenda for sustainable development and the sustainable development goals. Convened under the auspices of the Economic and Social Council. Provides for the full and effective participation of all States Members of the United Nations and States members of specialized agencies HLPF replaces the previous (Rio associated) Commission for Sustainable Development
Executive Committee of Economic and Social Affairs Plus	ECESA Plus	Main inter-agency coordination mechanism for the Rio+20 follow-up. Brings together 50 plus UN entities. Convened by the UN-DESA
Open Working Group on Sustainable Development Goals	OWG	Developed the SDGs with support from the Secretary General. Under the auspices of the UN General Assembly
High-level Group for Partnership, Coordination and Capacity-Building for statistics for the 2030 Agenda	HLG	Aims to establish a global partnership for sustainable development data. Reports annually to the <i>UN Statistical Commission (UNSC)</i> . Resource mobilization for global data and statistical capacity building.
UNDG Sustainable Development Working Group	SDWG	Implementation of the post-2015 development agenda with main objective to formulate policies and strategies which help support implementation, monitoring, and reporting.
Inter-Agency Expert Group on SDG indicators	IAEG-SDGs	Established by UN Statistical Commission (March 2015) comprising 28 country representing regions. A global indicator framework comprising 230 indicators to monitor the 169 targets of the 2030 Agenda for Sustainable Development was agreed at the UN Statistical Commission (UNSC) in March 2016. The list of indicators will not be updated until 2020 when the UNSC will conduct a first complete review of the global indicator framework.
Inter-Agency Task Force on the follow up-to Financing for Development	IATF on FfD	Addis Agenda calls for an annual ECOSOC Forum on Financing for Development follow-up (FfDF) for implementation of SDGs. Reports to HLPF. The IATF will support FfDF by reporting annually on progress in implementing the FfD outcomes and the Means of Implementation (MoI) of the 2030 Agenda for Sustainable Development
UN Statistical Commission	UNSC	UNSC reports to the Forum on SDG indicators; its sub groups are developing indicators to measure progress in achieving the 169 targets at realistic cost and effort.
UN Department of Economic and Social Affairs	UN DESA	An interface between global policies in the economic, social and environmental spheres and national action. Work is guided by 2030 Agenda for Sustainable Development,
UN Division for Sustainable Development	UN DSD	A division of DESA
Global Network of National Councils for Sustainable Development.	GNNCSD	National Councils for Sustainable Development (NCSDs) are the highest-level body at the national level whose primary mandate is to further sustainable development within the country. The Global Network is open to a wide range of 'NCSDs' whose form and function differs considerably from one country to the next.

## FAO institutions and programmes relevant to delivery of SDGs

Code of Conduct for Responsible Fisheries	CCRF	Drawn up by FAO, following a call from the International Conference on Responsible Fishing (Cancun, Mexico, 1992), to strengthen the international legal framework for more effective conservation, management and sustainable exploitation and production of living aquatic resources. Includes a section (9) devoted to aquaculture.
Committee on Fisheries	COFI	In 1965 the Council of FAO recommended that a Committee on Fisheries (COFI) be established as a Standing Committee of the Council under Article V of the FAO Constitution. Its purpose is to review FAO fishery programmes and international fishery issues, discuss solutions, propose recommendations, and report to DG. The inter-governmental forum meets biannually.
Committee on World Food Security	CFS	An inclusive international and intergovernmental platform for all stakeholders to work together in a coordinated way to ensure food security and nutrition for all.
Committee on Agriculture	COAG	FAO's main technical advisory committee on agriculture
Committee on Forestry	COFO	highest FAO Forestry statutory body.
Commission on Genetic Resources for Food and Agriculture (FAO)	CGRFA	The Commission's initial (1983) mandate – to address plant genetic resources for food and agriculture – was broadened in 1995 to include all components of biodiversity for food and agriculture (CGRFA). Reports on the State of the World's Aquatic Genetic Resources for Food and Agriculture (SoWAqGR).
COFI Sub-Committee on Aquaculture	COFI/AQ	Established 2001. Inter-governmental forum for consultation and discussion on aquaculture; advise COFI on technical and policy matters related to aquaculture and work to be performed by FAO related to aquaculture.
COFI Sub-Committee on Fish Trade	COFI/FT	Established 1985. Inter-governmental forum for consultation and discussion on technical and economic aspects of international trade in fish and fishery products including pertinent aspects of production and consumption. Advise COFI on technical and policy matters related to fish trade and work to be performed by FAO related to fish trade, safety and consumption
COFI Advisory Working Group on Aquatic Genetic Resources and Technologies	AWGAGRT	Established 2014. Established in recognition of the opportunities to increase food production and improve livelihoods from the responsible use, management and conservation of aquatic genetic resources and technologies. 10 experts.
FAO Expert Advisory Panel for the Assessment of CITES Proposals	EAP CITES	Established by COFI in 2003 for assessment of listing proposals to CITES concerning commercially exploited aquatic species.
FAO/ GEF Coastal Fisheries Initiative	CFI	The Coastal Fisheries Initiative (CFI) is a partnership of CI, FAO, UNDP, UNEP, World Bank, WWF, developed and funded within the Global Environment Facility (GEF) framework of safeguarding the world oceans and the marine environment. Includes projects in Indonesia, Ecuador Peru, Cabo Verde, Côte d'Ivoire and Senegal; and two cross cutting project: the Challenge Fund and the Global Partnership.
FAO Fisheries and Aquaculture Department	FIA	Vision: A world in which responsible and sustainable use of fisheries and aquaculture resources makes an appreciable contribution to human well-being, food security and poverty alleviation. Mission: To strengthen global governance and the managerial and technical capacities of members and to lead consensus-building towards improved conservation and utilization of aquatic resources.
FAO Disaster Risk Reduction for Food and Nutrition Security Framework Programme	DRR	Strives to assist member countries implement the five Priorities for Action in the Hyogo Framework for Action in the agricultural sectors

FAO Livelihoods	Resilient	Resilience Programme	Through its disaster risk reduction (DRR) activities, FAO seeks to protect livelihoods from shocks, to make food production systems more resilient and more capable of absorbing the impact of, and recovering from, disruptive events.
The sustainable food systems program	FAO/UNEP	SFSP	FAO and UNEP, together with the Agri-food Task Force on Sustainable Consumption and Production (SCP). Aims to improve resource use efficiency and reduce the pollution intensity of food systems from production to consumption, while at the same time addressing issues of food and nutrition security
FAO's Water Scarcity Programme			Applies principles of integrated water resources management (IWRM) to the agriculture sector
Blue Growth Initiative		BGI	An FAO initiative – prioritizes balancing the sustainable and socioeconomic management of natural aquatic resources, with an emphasis on efficient resource use in capture fisheries and aquaculture, ecosystem services, trade, livelihoods and food systems. Flagship regional initiatives in Asia and the Pacific, Near East and North Africa.
NEPAD FAO Fish Programme		NFFP	Umbrella for a programme of work in Africa relating to fisheries and aquaculture The NEPAD Agency is the implementing agency of the African Union.
Save and Grow			In 2011, FAO launched a new paradigm for intensive crop production that enhances both productivity and sustainability. Save and Grow calls for greening of the Green Revolution through an ecosystem approach that draws on nature's contribution to crop growth, such as organic matter, water flow regulation, pollination and bio-control of insect pests and diseases. Associated with a rich toolkit.
FAO Strategy for Support to Investment in Food and Agriculture			

### Aquaculture and fisheries institutions and initiatives that could play a key role in delivering the SDGs

African Union: Conference of African Ministers on Fisheries and Aquaculture	CAMFA	20-23 September 2010, Banjul, “African Fisheries and Aquaculture: Contributing towards Agricultural Development and Economic Growth
ASEAN Fisheries Education Network	ASEAN-FEN	A university-based consortium representing fisheries and aquaculture oriented institutions within the Southeast Asia region
Aquaculture Network of the Americas	RAA	20 countries from Latin America and the Caribbean, and Canada, Created in Brazil 2010
Aquaculture Network for Africa	ANAF	Being established
Blue Growth Initiative	BGI	An FAO initiative – prioritizes balancing the sustainable and socioeconomic management of natural aquatic resources, with an emphasis on efficient resource use in capture fisheries and aquaculture, ecosystem services, trade, livelihoods and food systems. Flagship regional initiatives in Asia and the Pacific, Near East and North Africa.
Asia Pacific Fisheries Commission	APFIC	Works to improve understanding, awareness and cooperation in fisheries issues in the Asia-Pacific region. Hosted by the FAO Regional Office for Asia and the Pacific, in Bangkok, Thailand.
Commission for Inland Fisheries and Aquaculture of Latin America and the Caribbean	COPESCAALC	Established in 1976 to promote the responsible use of inland fishery resources, advise governments in fishery management measures and support the development of aquaculture. Headquarters at FAO Regional Office for Latin America and the Caribbean.
Committee for Inland Fisheries and Aquaculture of Africa	CIFAA	Regional fisheries body to promote the development of inland fisheries and aquaculture in Africa. Established 1971
European Aquaculture Technology and Innovation Platform	EATIP	A non-government membership based platform comprising industry, R&D and a wide range of organisations aimed at improved research, development and innovation framework conditions to support the sustainable development of European aquaculture.
European Inland Fisheries and Aquaculture Advisory Commission	EIFAAC	Regional Fisheries Body established 1957 to promote the long-term sustainable development, utilization, conservation, restoration and responsible management of European inland fisheries and aquaculture, consistent with the objectives and principles of the FAO Code of Conduct for Responsible Fisheries and other relevant international instruments, and to support sustainable economic, social, and recreational activities towards these goals
Fisheries and Aquaculture Organization of Central America countries.	OSPESCA	RFB. Organización del Sector Pesquero y Acuícola del Istmo Centroamericano, OSPESCA aims to encourage the development and the coordinated management of regional fisheries and aquaculture activities.
Global Partnership for Climate, Fisheries and Aquaculture  SDG 2,13,14	PaCFA	A voluntary initiative among more than 20 international organizations and sector bodies with a common concern for climate change interactions with global waters and living resources and their social and economic consequences. PaCFA members share a commitment to raising awareness of the vital importance of these issues, developing effective tools and management approaches to address them, and building international development support to implement change and bring about lasting positive outcomes.

Global Seafood Sustainability Initiative	GSSI(a)	Multi-Stakeholder Network for the development of a benchmarking tool for standards and certification schemes for fishery and aquaculture products. Focused primarily on assessing compatibility with FAO's Code of Conduct for Responsible Fisheries (CCRF) and related (seafood certification) guidelines.
Global Sustainable Seafood Initiative	GSSI(b)	Global platform and partnership of seafood companies, NGOs, experts, governmental and intergovernmental organizations working towards more sustainable seafood for everyone. Taking forward a collective, non-competitive approach to provide clarity on seafood certification and ensure consumer confidence in certified seafood. Based on CCRF and associated guidelines. Have developed a <b>Global Benchmark Tool</b>
Network of Aquaculture Centres in Asia-Pacific	NACA	intergovernmental network promoting sustainable aquaculture development in Asia Pacific
<a href="http://www.fao.org/asiapacific/news/detail-events/en/c/319835/">http://www.fao.org/asiapacific/news/detail-events/en/c/319835/</a>	MASA	
Regional Fisheries Body <a href="http://www.fao.org/fishery/rfb/en">http://www.fao.org/fishery/rfb/en</a>	RFB	Regional fishery bodies (RFBs) are intergovernmental bodies through which States cooperate on the management of fisheries in specific regions.
Western Central Atlantic Fishery Commission	WECAF	RBF

## Other international institutions and initiatives relevant to delivery of the SDGs

African Union: Malabo Summit July 2014		African Heads of State committed to end hunger on the continent by 2025
Committee on World Food Security	CFS	The foremost inclusive international and intergovernmental platform for all stakeholders to work together to ensure food security and nutrition for all, led by a joint Rome-based Agency secretariat. Produced RAI principles (see below) FAO is a key partner and supports CFS's engagement in the SDG architecture. Oversees Technical Task Team of the CFS's newly established Open-Ended Working Group on SDGs
Community of Latin America and the Caribbean States	CELAC	At the first Summit 2005, Heads of State and Government endorsed and re-affirmed the 2025 zero hunger target – a regional commitment to a Hunger-Free Latin America and the Caribbean.
Comprehensive Africa Agriculture Development Programme	CAADP	Africa's policy framework for agricultural transformation, wealth creation, food security and nutrition, economic growth and prosperity for all. Implemented through NEPAD
Decent Work Agenda	DWA	ILO initiative. The Agenda has 4 pillars: employment creation, social protection, rights at work, and social dialogue; with gender equality a cross-cutting theme. Broadly aims to achieve fair globalization and poverty reduction. Key to delivery of SDG 8.
Framework for Action for Food Security and Nutrition in Protracted Crises	CFS-FFA	Sponsored by Committee on World Food Security to address the problems associated with protracted crises
Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries	EIF	EIF is a multi-donor programme, which supports LDCs to be more active players in the global trading system by helping them tackle supply-side constraints to trade. Wider goal is promoting economic growth and sustainable development and helping to lift more people out of poverty
Global Agenda for Sustainable Livestock	GASL	Multi-stakeholder partnership (livestock sector stakeholders, private sector, NGOs and social movements, government partners, research institutions, international agencies and foundations) committed to the sustainable development of the livestock sector and delivery of relevant SDGs. The Agenda catalyses policy dialogue into practice change. Focus: Global food security and health; Equity and growth; and Resources and climate. SDGs 1, 2, 6, 10, 13 and 15.
Global Facility for Disaster Reduction and Recovery	GFDRR	Global partnership that helps developing countries better understand and reduce their vulnerabilities to natural hazards and adapt to climate change
The Global Forum on Agricultural Research	GFAR	Hosted by FAO. Multi-stakeholder Forum for open dialogue, sharing knowledge, agreeing on priorities and catalysing collective actions in agri-food research and innovation. Partners in the Forum work to ensure that agri-food research and innovation – whether through research, extension, education or enterprise – delivers the best possible development outcomes for resource-poor farmers and rural communities.
Global Soil Partnership SDG Goals 2, 3, 12 and 15.	GSP	International governance body to advocate for soils, to coordinate soil related initiatives among partners, and to ensure that knowledge and recognition of soils are appropriately represented in global change dialogues and decision making processes. Promotion of sustainable soil management (SSM) at all levels. Has published voluntary guidelines for sustainable soil management
Green Climate Fund	GCF	Global platform accountable to the UN to respond to climate change by investing in low-emission and climate-resilient development. GCF was established by 194 governments to limit or reduce greenhouse gas (GHG) emissions in developing countries, and to help vulnerable societies adapt to the unavoidable impacts of climate change.
UN High Level Committee on Programmes	HLCP	Promotes system-wide (UN Agency) cooperation, coordination and knowledge sharing in programme and operational areas.
UN System Chief Executives Board	CEB	UN System coordination

UN Development Group	UNDG	UN System coordination
UN Environmental Management Group	EMG	UN System coordination
High level panel of Experts on food security and nutrition	HLPE	The Science-policy interface of the UN Committee on World Food Security (CFS), established in 2010. Aims to improve the robustness of policy making by providing independent, evidence-based analysis and advice at the request of CFS.
International Partnership for cooperation on child labour in agriculture		Brings together the ILO, FAO, IFAD, IFPRI, IFAP, and IUF to better address child labour in agriculture.
New Partnership for Africa's Development	NEPAD	Development partnership. Coordinates programmes through the NEPAD Agency based in South Africa
Organisation for Economic Cooperation and Development	OECD	The mission of the Organisation for Economic Co-operation and Development is to promote policies that will improve the economic and social well-being of people around the world.
UN Country Teams	UNCTs	The UNCT ensures inter-agency coordination and decision-making at the country level. The main purpose of the Country Team is for individual agencies to plan and work together, as part of the Resident Coordinator system, to ensure the delivery of tangible results in support of the development agenda of the Government. The UNCT is led by the UN Resident Coordinator, who is the designated representative of the UN Secretary-General. The Resident Coordinator reports to the UN Secretary-General through the Chair of the UNDG.
UN Division for Ocean Affairs and Law of the Sea	UN-DOALOS	The Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs has consistently been recognized for its role in contributing to the wider acceptance and rational and consistent application of the United Nations Convention on the Law of the Sea.
UN Economic and Social Council	ECOSOC	ECOSOC Forum on Financing for Development follow-up (FfDF) established under Addis Ababa Agenda
UN High Level Task Force on Global Food Security	HLTF	The primary aim of the Task Force is to promote a comprehensive and unified response of the international community to the challenge of achieving global food and nutrition security.
UN-Oceans	UN-Oceans	Inter-agency mechanism that seeks to enhance the coordination, coherence and effectiveness of competent organizations of the United Nations system and the International Seabed Authority
UN-Water	UN-water	UN-Water is the United Nations inter-agency coordination mechanism for all freshwater related issues, including sanitation.
UN Statistical Division	UNSD	The United Nations Statistics Division is committed to the advancement of the global statistical system. We compile and disseminate global statistical information, develop standards and norms for statistical activities, and support countries' efforts to strengthen their national statistical systems. We facilitate the coordination of international statistical activities and support the functioning of the United Nations Statistical Commission as the apex entity of the global statistical system.
UN Statistical Commission	UNSC	Established in 1947, this is the apex entity of the global statistical system and the decision-making body for international statistical activities. UNSC reports to the Forum, and its sub groups are developing indicators to measure progress in achieving the 169 targets at realistic cost and effort.
UN System Standing Committee on Nutrition	UNSCN	Created in 1977 through an ECOSOC resolution. The five UN agencies, FAO, IFAD, UNICEF, WFP and WHO, with an explicit mandate to improve nutrition levels in the world, are members of UNSCN – but open to all other agencies.
World Customs Organization	WCO	Established in 1952 (as the Customs Co-operation Council) WCO is an independent intergovernmental body whose mission is to enhance the effectiveness and efficiency of Customs administrations

## Approaches, Tools and implementation concepts relevant to delivery or monitoring of SDGs

Agricultural Market Information System.	AMIS	Hosted by FAO AMIS offers market forecasts and policy information accessible to the public through an open database. Launched by the Group of Twenty (G20) in 2011 as a multi-agency platform of 10 international entities to enhance transparency in international food markets and facilitate the coordination of policies in times of market uncertainty. The <i>Global Food Market Information Group</i> consists of technical representatives from countries participating in AMIS. The <i>AMIS Rapid Response Forum</i> is composed of senior officials from countries participating in AMIS, designed to promote early discussion about critical market conditions. See also FPMA
Catch Documentation Schemes	CDS	Schemes requiring full tracking documentation from landing through the value chain
Classification of Functions of Government	COFOG	Developed by the OECD from the <i>System of National Accounts</i> for the purpose assigning public expenditure to standard spend categories.
Climate Smart Agriculture	CSA	FAO strategic approach to developing the technical, policy and investment conditions to address the interlinked challenges of sustainably increasing food production, achieving food security and development targets while addressing the challenges of climate change.
Domestic Animal Diversity Information System	DAD-IS	Database to enable countries to directly report on animal breeds and genetic resources
Ecosystem Approach; Ecosystem Approach to Fisheries; Ecosystem Approach to Aquaculture	EA; EAF; EAA	A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (CBD5 definition). In fisheries and aquaculture the EAF/EAA elaborates further on the CCRF. “An ecosystem approach to aquaculture (EAA) is a strategy for the integration of the activity within the wider ecosystem such that it promotes sustainable development, equity, and resilience of interlinked social-ecological systems.” (CCRF Technical Guideline on EAA) In practical implementation terms it promotes emphasis on planning and management systems, conservation of ecosystem services, risk management, and participation in planning and decision making
Energy-Smart Food for People and Climate	ESF	Concept embraced by FAO and elaborated in an FAO Issue Paper in 2011: efforts to attain food security need to be water, land, and energy smart.
Decent Work Agenda	DWA	ILO initiative. The Agenda has 4 pillars: employment creation, social protection, rights at work, and social dialogue; with gender equality a cross-cutting theme. Broadly aims to achieve fair globalization and poverty reduction. Key to delivery of SDG 8.
Framework for Action for Food Security and Nutrition in Protracted Crises	CFS-FFA	Sponsored by Committee on World Food Security to address the problems associated with protracted crises
FAO- ADAPT	FAO-ADAPT	FAO-wide framework programme on climate change adaptation. Closely linked to the CSA approach.
FAO Code of Conduct for Responsible Fisheries	CCRF	The Code sets out principles and international standards of behavior for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The Code recognizes the nutritional, economic, social, environmental and cultural importance of fisheries and the interests of all stakeholders of the fishing and aquaculture industries. The Code takes into account the biological characteristics of the resources and their environment and the interests of consumers and other users.
FAO’s Gender and Land Rights database	GLRD	Launched by FAO in 2010 to highlight the major political, legal and cultural factors that influence the realisation of women’s land rights throughout the world. Includes 84 Country Profiles, Land Tenure Statistics disaggregated by gender, and a Legal Assessment Tool for gender-equitable land tenure

FAO Food Insecurity Experience Scale	FIES	FAO experience-based metric of severity of food insecurity that relies on people's direct responses collected through the FIES Survey Module (FIES-SM) which consists of eight questions regarding people's access to adequate food
FAOs Legal Assessment Tool	LAT	Provides a scroll-down list of legal indicators for gender-equitable land tenure focusing on the elimination of gender-based discrimination in the constitution, in inheritance, nationality, property rights and access to justice. Used to monitor two SDG gender/land rights indicators.
(World) Food Price Monitoring and Analysis	FPMA	Prices, price warnings, regional roundups, policy/initiative monitoring resource developed by FAO and supported by the FPMA Tool. Provides an advanced technical solution developed in 2010 for dissemination and analysis of price information. See also AMIS
Global Agenda for Sustainable Livestock	GASL	Multi-stakeholder partnership (livestock sector stakeholders, private sector, NGOs and social movements, government partners, research institutions, international agencies and foundations) committed to the sustainable development of the livestock sector and delivery of relevant SDGs. The Agenda catalyses policy dialogue into practice change. Focus: Global food security and health; Equity and growth; and Resources and climate. SDGs 1, 2, 6, 10, 13 and 15.
Global Information and Early Warning System on Food and Agriculture	GIEWS	Monitors food supply and demand and other key indicators for assessing the overall food security situation in all countries of the world. It issues regular analytical reports on prevailing conditions and provides early warnings of impending food crises at country or regional level.
Global Partnership for Sustainable Development Data <a href="http://www.data4sdgs.org/">www.data4sdgs.org/</a>		Open, multi-stakeholder network (150+ partners) working towards resource mobilization for global data and statistical capacity building for promoting poverty eradication and sustainable development. See also HLG
Global Strategy to Improve Agricultural Statistics	GSAIS	Largest-ever initiative of capacity development in agricultural statistics. FAO is developing guidelines on new cost-effective methods.
Global Survey Hub Agriculture related SDG targets	GSH	FAO. Support for countries in designing and implementing integrated agricultural surveys that will collect data to monitor many of the agriculture-related SDG targets, such as those on smallholder productivity and incomes, sustainable agriculture and on equal access to land.
International System for Agricultural Science and Technology	AGRIS	Global public database providing access to bibliographic information on agricultural science and technology. Designed to improve the access and exchange of information serving the information-related needs of developed and developing countries on a partnership basis. Hosted by FAO
Integrated Food Security Phase Classification	IPC	IPC is a set of tools currently used in over 20 countries to generate information on the severity and causes of food and nutrition crises, and persistent food insecurity.
Living Standards Measurement Study	LSMS-ISA	Integrated Surveys on Agriculture (LSMS-ISA) are multi-topic, nationally representative panel household surveys with a strong focus on agriculture used by World Bank
Nationally Determined Contributions (NDCs)		Countries commitments re Climate Change pledges
Principles for Responsible Investment in Agriculture and Food Systems	RAI Principles	10 principles updated in 2014 largely consistent with the SDGs. Coordinated by CFS
Reducing emissions from deforestation and forest degradation	REDD+	United Nations Framework Convention on Climate Change (UNFCCC) defines REDD+ as approach that promotes best management practices for conservation, production and enhancement of carbon stocks while providing a range of forest ecosystem goods and services at the local, national, regional and global levels.
Save and Grow		In 2011, FAO launched a new paradigm for intensive crop production that enhances both productivity and sustainability. Save and Grow calls for greening of the Green Revolution through an ecosystem approach that draws on nature's contribution to crop growth, such as organic matter, water flow regulation, pollination and bio-control of insect pests and diseases. Associated with a rich toolkit.

Report on the State of the World on Aquatic Genetic Resources			The conservation and sustainable use of aquatic genetic resources have crucial roles to play in order for aquaculture to grow sustainably and meet the world's increased food demands. To facilitate these roles the Commission on Genetic Resources for Food and Agriculture requested FAO to prepare the first report on The State of the World's Aquatic Genetic Resources for Food and Agriculture for its Sixteenth Regular Session (2017). The scope of the Report will be farmed aquatic species and their wild relatives within national Jurisdiction; the Report will address inventories of aquatic genetic resources for food and agriculture, the drivers impacting them, in situ and ex situ conservation, stakeholders, legislation and policies, institutional capacities, research and international collaboration. Prepared under the guidance of the Commission and in close collaboration with the FAO Fisheries and Aquaculture Department, the Report will provide the first comprehensive analysis of the world's aquatic genetic resources for food and agriculture.
Sustainable Forest Management	SFM		The United Nations General Assembly defines SFM as a “dynamic and evolving concept, which aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations”.
Sustainable Land Management	SLM		“the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions” (UN Earth Summit, 1992)
Sustainable Soil Management	SSM		Articulated in particular in FAO/Global Soil Partnerships guidelines on SSM
UN Development Assistance Framework	UNDAF		The UNDAF is a programme document between a government and the United Nations Country Team (UNCT) that describes the collective actions and strategies of the United Nations to the achievement of national development. The UNDAF includes outcomes, activities and UN agency responsibilities that are agreed by government. The UNDAF shows where the United Nations can contribute most effectively to the achievement of national development priorities. UNDAF's typically run for three years and include reviews at different points. The UNDAF is the strategic programme framework that describes the collective response of the UN system to national development priorities.
Vigo Dialogue on Decent Work in Fisheries and Aquaculture			Facilitated multi-stakeholder dialogue, held annually in conjunction with the CONXEMAR Congress and Fair, since October 2014. Initiated/coordinated by FAO, ILO, CONXEMAR (Spanish Association of Wholesalers, Importers, Transformers and Exporters of Fishery and Aquaculture Products)
Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security	VGGTs		Committee on World Food Security in association with FAO. Endorsed by the CWFS in May 2012

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