IRENA
International Renewable Energy Agency

Capacity Building Strategic Framework for IRENA (2012- 2015)

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About IRENA

The International Renewable Energy Agency (IRENA) is an intergovernmental organisation dedicated to renewable energy.

In accordance with its Statute, IRENA's objective is to "promote the widespread and increased adoption and the sustainable use of all forms of renewable energy". This concerns all forms of energy produced from renewable sources in a sustainable manner and includes bioenergy, geothermal energy, hydropower, ocean, solar and wind energy.

As of November 2012, the membership of IRENA comprised 159 States and the European Union (EU), out of which 101 States and the EU have ratified the Statute.

Acknowledgement

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Acronyms

BNEF	Bloomberg New Energy Finance
BRICS	Brazil, Russia, India, China, South Africa
ECOWAS	Economic Community of West African States
ECREEE	ECOWAS Centre for Renewable Energy and Energy Efficiency
GSR	Renewables Global Status Report
GTZ	Deutsche Gesellschaft für Internationale Zusammenarbeit mbH
IEA	International Energy Agency
ILO	International Labour Office
IPCC	Intergovernmental Panel on Climate Change
IPPs	Independent Power Producers
IRELP	IRENA Renewable Energy Learning Partnership
IRENA	International Renewable Energy Agency
LAC	Latin America and the Caribbean
MDGs	United Nations Millennium Development Goals
MTS	IRENA Medium-Term Strategy
OECD	Organisation for Economic Co-operation and Development
PPAs	Power Purchase Agreements
PV	Photovoltaic
REN21	Renewable Energy Policy Network for the 21st Century
RRA	Renewable Readiness Assessment
SME	Small and medium enterprises
TVET	Technical and Vocational Education and Training
UNEP	United Nations Environment Programme
WEO	IEA World Energy Outlook

IRENA

International Renewable Energy Agency

Executive Summary

The International Renewable Energy Agency (IRENA) strives to help its member countries formulate long-term capacity building responses integrated into national policies and processes. This draft capacity building strategic framework identifies what needs to be done to encourage the adoption and scale-up of renewable energy. It also clarifies how IRENA can best address the existing barriers and capacity gaps.

As the beacon for renewable energy across the world, IRENA is in a unique position to accelerate and sustain renewable energy in industrialised and developing countries. It fulfils this role by acting as the global voice for the industry and as the main port of call for advice to developing countries and by providing an information and network hub for national, regional and global programmes. In recent months, IRENA has held a number of consultations with member countries to ensure it better responds to their needs. These countries expressed their views during the Inaugural and Second Assemblies held in April 2011 and January 2012, the IRENA-Africa High Level Consultative Forum in July 2011, the Sydney workshop in October 2011, the Pacific leaders' meeting and the capacity building expert meetings in January and June 2012.

Studies suggest there are critical regulatory and infrastructure obstacles to the development and large scale deployment of renewable energy. Barriers to renewable energy deployment are classified in this document as follows: i) institutional and policy barriers, ii) market failures and economic barriers, iii) education and training barriers, iv) data, information and awareness barriers, and v) sociocultural barriers. To deploy renewable energy successfully, capacity building for the all the institutions and individuals involved is needed to overcome all barriers.

It is widely acknowledged that the successful deployment of renewable energy depends on a supportive, facilitating environment. This environment is created by providing the right conditions for a skilled workforce to develop, technology transfer, access to affordable finance, networks and markets and transparent administrative procedures. It therefore includes stakeholders from government, finance and the business community as well as civil society (IPCC, 2011).

IRENA does not want to duplicate the activities of other organisations. As the global and intergovernmental organisation for the renewable sector, IRENA is in a unique position to pool resources and co-ordinate activities in the sector. It can develop and test new approaches while building on existing efforts. IRENA also strives to involve a wide range of stakeholders in scaling up renewable energy deployment through successful and co-ordinated capacity building efforts. IRENA thus takes on the role of a facilitator for capacity building.

The organisation's capacity building services ultimately aim to deliver a higher number of skilled and appropriately qualified people who have acquired extensive knowledge of renewable energy and technology. This they can use to make strategic decisions and work in effective and efficient institutions and industries providing renewable energy services and achieving a long-term impact.

This document will guide the development and draft of capacity building activities for IRENA Work Programmes until 2015. The Secretariat already observes principles laid out in this document as it carries out activities generated by the 2012 Work Programme. For instance, key areas of intervention in regional capacity building initiatives are in line with principles in this document. Some activities already completed provide a sound basis for work over the coming years. The draft outline for the 2013 Work Programme is built on the principles in this document.

1. Introduction

1.1 PURPOSE OF THE IRENA CAPACITY BUILDING STRATEGIC FRAMEWORK

Global investment in renewable energy jumped by 17% in 2011 and set a new record of USD 257 billion invested (UNEP, 2012). Even though investment in renewables has grown in developing countries over the years, a large share of this investment is still confined to only a few countries i.e. China, US, Germany, Italy and India, while renewable energy investment in developing countries is still rare; for example, only 35% of total investment in renewable energy took place in developing countries and only USD 5 billion new investments were made in the Middle East and Africa in 2011 (UNEP, 2012).

The development of the renewable energy sector in the five countries mentioned above has demonstrated the range of socio-economic benefits it provides.

As a result, many other countries are becoming increasingly focused on accelerating the uptake of renewable energy. To do so, they are setting renewable energy targets, adopting policies that support the deployment of renewable energy technology, stimulating innovation and expanding related markets. REN21's Renewables 2012 Global Status Report (REN21, 2012) shows that by early 2011 about 118 countries had renewable energy targets. At least half of these are developing countries, while 109 countries have policies supporting renewable energy in the power sector.

This is encouraging, but for many countries the primary challenge is not about agreeing on the adoption of targets and policies, but driving those policies and targets through. This means that in many countries the implementation of targets and policies promoting renewable energy use is lagging behind.

One reason for this is that some countries lack the required institutional and individual skills and knowledge base or experience to implement renewable energy policies and accelerate deployment. This is particularly evident in developing countries.

IRENA strives to improve the ability of its member countries to formulate long-term capacity building responses integrated into national policies and processes. This strategic document identifies key areas to be targeted to encourage the adoption and scale-up of renewable energy deployment. It also clarifies how IRENA can best overcome existing barriers and bridge capacity gaps. The rest of this document outlines the scope, approach and framework that IRENA will apply to help build the required institutional and individual capacities in member countries. It includes the principles to be observed and key areas for intervention.

The IRENA Capacity Building Strategic Framework proposed here has been prepared in accordance with the 2011 and 2012 IRENA Work Programmes. With these Work Programmes Member countries requested the Secretariat to prepare a strategic framework for IRENA capacity building services to member countries.

The authors of this document aim to define the strategic direction, objectives, role and commitment of IRENA for 2012 – 2015. This is in order to fulfil its mandate for capacity building and to support the achievement of the Agency's overall vision and mission.

1.2 OUTLINE OF THE IRENA CAPACITY BUILDING STRATEGIC FRAMEWORK

The remainder of the proposed strategy is structured as follows: in Chapters 2 and 3 there is a description of the institutional context and consultative processes. This part describes the vision, mission and medium-term strategy of IRENA, providing the setting in which the present capacity building strategy has been developed. Chapter 4 additionally provides an abstract of the common barriers to renewable energy deployment that have to be overcome by IRENA. Chapter 5 contains an outline of the IRENA approach to capacity building including a set of guiding principles. Chapter 6 defines the action that needs to be taken to overcome previously identified barriers to renewable energy deployment. Chapter 7 presents some current IRENA capacity building projects that put the outlined principles into practice and address the key action areas. Chapter 8 previews the expected outcomes of IRENA capacity building services for 2012 to 2015. Chapter 9 concludes the document with an outline of the practical implementation framework.

2. Institutional Context

2.1 IRENA VISION AND MISSION

IRENA seeks to make a global impact on renewable energy. This is achieved by maintaining a clear and independent position, providing a range of reliable and well-understood services that complement those already offered by the renewable energy community. It also acts as a central hub for existing but geographically scattered activities.

The international renewable energy community is large, resourceful and rapidly evolving. IRENA does not duplicate the activities of others but seeks out and establishes new synergies as well as facilitating the exchange of information and share of best practice. The Agency's work covers co-operation at the global, regional and national level, knowledge sharing, enabling policies and strengthening capacities. It also encourages investment flows and encourages technology innovation. IRENA is positioning itself as a platform for comprehensive co-operation through which stakeholders can make a positive contribution to common goals. This co-operation and these partnerships underpin IRENA work.

International, intergovernmental and non-governmental organisations are natural and indispensable partners, as are the many private sector companies already seizing the opportunities offered by renewable energy. Civil society groups also contribute to the IRENA vision by being prominent advocates and observers of action taken by governments, non-governmental organisations and the private sector. IRENA directs its principal partnership activities towards knowledge sharing, ensuring that existing information and experience is developed, organised and made accessible in a usable format.

IRENA is uniquely positioned to bring together these different constituencies. It aims to become the instrument that binds all parts together and becomes a powerful force in advancing the agenda of renewable energy. The ultimate goal of IRENA is to safeguard a sustainable future.

2.2 MEDIUM-TERM STRATEGY OF IRENA

Countries all over the world are increasingly experiencing tremendous opportunities to use renewable energy technologies. This will help them face the world's most urgent challenges: access to energy, energy security, sustainable economic growth and climate change.

The vision in the proposed Medium-term Strategy of IRENA (MTS) takes up these challenges and the opportunity to make an impact and responds to the changing needs of its stakeholders. It aims to foster an enabling environment in both developed and developing countries and promote the rapid deployment of renewable energy technologies and the renewable energy business case.

As outlined in its statute, the IRENA vision for the medium term is summarised as follows:

> To be the principal platform for international co-operation, a centre for excellence on renewable energy and a repository of policy, technology, resource and financial knowledge and to support countries in their transition to a renewable energy future.

This is based on the overall mission of IRENA as outlined in its statute.

As the beacon for renewable energy across the world, IRENA is in the best position to accelerate and sustain renewable energy in industrialised and developing countries. It fulfils this role by acting as the global voice for the industry and the main port of call for advice to developing countries and by providing an information and network hub for national, regional and global programmes.

2.2.1 Global Voice

The IRENA objective is to become the authoritative global voice for renewable energy and technology while providing a strong and consistent case for renewable energy and a comprehensive information base.

As the unifying voice for renewable energies, IRENA provides easily accessible and accurate information to stimulate investment, while drawing on its wide membership and direct link to governments. In addition, IRENA needs to

strengthen its role in awareness raising and education to become a global promoter of renewable energy.

2.2.2 Advisory resource

IRENA has several objectives. One is to assist countries in strengthening their technical and institutional capacity. Another is to help them develop an enabling policy framework and their own business case for renewable energy and technology deployment. It also aims to help them analyse existing financial instruments and their contribution to renewable energy investment strategies.

A unique mandate and global membership puts IRENA in the best position to provide strategic policy advice and capacity building support to individual countries. It is also in the best position to help developing countries in particular build their technical and institutional capacity and their own business case for renewable energy deployment.

IRENA is ready to develop an authoritative, accessible capacity building and learning resource that relates to renewable energy policy, technology, financing and investment for practitioners.

2.2.3 Network hub

The IRENA objective is to support and benchmark member countries, agencies, programmes and institutions responsible for deploying renewable energy and technology.

IRENA acts as a broker and accelerator for stakeholder groups at various levels and programmes. It acts to understand the range of approaches and programmes that will accelerate the transfer of best practice. In doing so, IRENA strives to integrate renewable energies into the overall energy and development agenda of individual countries; to help ministries and agencies act as ambassadors for the cause of renewable energy; to enable access to training resources to support capacity building; and to bring together the public and private sector for renewable energy deployment and market development.

The present document translates the proposed MTS into a strategic framework for capacity building.

3. Consultative Process

In the past few months, IRENA has held a number of consultations with member countries in order to be in a better position to respond their needs. These countries have used the opportunity to express their views during several conferences. These include the Inaugural and Second Assemblies in April 2011 and January 2012, the IRENA-Africa High Level Consultative Forum in July 2011, the workshop on Accelerated Renewable Energy Deployment in Islands with Emphasis on the Pacific Islands in Sydney in October 2011 and the Pacific Leaders Meeting in Abu Dhabi in January 2012.

IRENA has also conducted targeted consultations on capacity building with African government officials in July 2011. Two capacity building expert meetings were also held in January and July 2012.

In addition, the IRENA Renewables Readiness Assessments (RRA) yielded valuable insights that helped shape this strategic framework. They were carried out at the end of 2011 in Senegal and Mozambique and in 2012 in Ghana, Grenada, Niger, Peru and The Gambia.

Various countries have stressed that IRENA should become the main port of call for members countries. To do so, it must keep abreast of policy and technological developments and know the challenges member countries face when striving to increase renewable energy use. As the repository for knowledge and best practice, IRENA will be in a position to help countries addressing those challenges.

IRENA must work with all stakeholders to promote a favourable framework and a culture which is conducive to investment and accepts accelerated and widespread renewable energy deployment.

Capacity building is seen as a cross-cutting issue that has to be evaluated in an integrated manner. It also needs to be viewed as an issue that covers the whole renewable energy value chain from resource assessments to decommissioning and recycling.

Officials from more than 30 countries and representatives of regional institutions, private sector associations, education institutions and renewable energy networks were present at two recent expert meetings. These were held on the fringes of the Second IRENA Assembly in January 2012 and the Third meeting of the IRENA Council in July 2012 (see above). They discussed the approach, principles and areas of intervention for the IRENA capacity building services. The present paper incorporates the findings of these meetings.

4. Barriers to Renewable Energy Deployment

The renewable energy sector still faces obstacles, despite the opportunities for economic and human development it provides and the impressive growth of the sector over the past two decades. Hence the sector will require considerable intellectual and material investment to operate at scale in most countries.

Studies suggest there are critical regulatory and infrastructure obstacles facing the development and large scale deployment of renewable energy. Barriers to renewable energy deployment are classified here as follows: i) institutional and policy barriers, ii) market failures and economic barriers, iii) education and training barriers, iv) data, information and awareness barriers and v) sociocultural barriers. These are based on the Intergovernmental Panel for Climate Change's (IPCC) Special Report on Renewable Energy Sources and Climate Change Mitigation (SRREN).

4.1 INSTITUTIONAL AND POLICY BARRIERS

Although a high number of countries have adopted renewable energy targets and policies, only a limited number have implemented effective support policies to date. These have resulted in the acceleration and widespread deployment of renewable energy. There is still a strong potential for improving policy design in most countries (IEA, 2008).

The lack of co-ordination of renewable policies with other national development and environmental protection goals is a further restriction to the deployment of renewables.

The main institutional and policy barriers can be summarised as follows:

- Lack of effective and efficient policies;
- Fragmented policy making;
- Lack of institutions to implement and administer the policies;
- Long lead times, complicated application procedures and bureaucracy.

In many countries, the energy sector is still highly concentrated, and regulations are designed for monopoly or near-monopoly providers. Regulations and standards have evolved under the assumption that energy systems are large and centralised (IPCC, 2011). Such regulations and standards do not consider appropriately the particular characteristics of renewable energies, *e.g.* some resources are intermittent and require specific policies for grid integration.

Policy makers need to have a thorough understanding of the importance of stakeholder engagement. This is because the policies, regulations or support schemes designed by government without accounting for the

requirements of all stakeholders in the field could harm the bankability of renewable energy projects.

In many countries, institutional capacities remain weak, *e.g.* they do not have a co-ordinating agency for renewable energy. This affects awareness, policy design and implementation processes. Where such entities exist, they are commonly restricted by a lack of resources.

Public authorities and procedures may inadvertently impose a major barrier to actual project implementation. Often the implementation of renewable energy projects fails due to the lack of capacities in the administrations responsible for a number of procedures. Application procedures for renewable energy projects and metering are just a couple of examples. Procedures are often described as being very bureaucratic at a number of levels, sometimes from local to national and even regional level and via many different authorities. This is irrespective of the project size (Jacobs, 2009).

4.2 MARKET FAILURES AND ECONOMIC BARRIERS

High entry barriers for renewable energy are typical of energy market structure at present. Market failures and economic barriers can be summarised as follows:

- Monopolistic energy markets;
- Subsidies to fossil fuels and lack of internalisation of external effects;
- High upfront costs and other financial risks;
- Unsuitable discount rates and low rates of return compared to conventional energy investments;
- Resistance of lenders/financial institutions.

Many governments subsidise conventional energy supply while neglecting renewable energy. Large subsidies are provided to conventional energy systems. In 2011, fossil fuel consumption subsidies rose to USD 630 billion compared to USD 66 billion for renewables (BNEF, 2012).

In addition, electricity supply is in many countries controlled by a (near) monopoly and quite often by a public utility. This places renewables at a substantial disadvantage. It is particularly true in developing countries where tariffs are commonly set to provide the population with affordable energy or electricity. While this is understandable, it can completely immobilise the system.

The absence of a competitive energy market is frequently exacerbated by relatively high up-front costs for renewable energy technologies. They require a package of government support for private capital via subsidies, tax credits, innovative financing mechanisms, low interest loans and loan guarantees that help to reduce investment costs.

4.3 EDUCATION AND TRAINING BARRIERS

Renewable energy is generally associated with net employment creation. Today five million[1] people are already directly or indirectly employed by the renewable energy sector (REN21, 2012). Renewable energy commitments and policies mean people qualified to work in the sector and its supply chains will continue to be in great demand.

The education system needs to adapt to this demand. The education system itself is facing a number of constraints that lead to delays in providing updated or entirely new programmes. Designing course modules or new programmes is a complex task that requires time and funding. Several studies have found many restrictions to the uptake of renewable energy educational courses and programmes: since renewable energy technologies are still comparatively immature, experienced professors, teachers, trainers and course materials are not yet widely available. The decision to include a new course or add a programme will depend on the awareness of academic staff; demand as well as the perception of demand; and the expectations of potential students. In addition, a lack of consultation with the renewable energy private sector brings with it the risk that skills developed do not meet required demand (ILO, 2011) and (factor CO_2, IEA-RETD, 2010).

The barriers in the educational system can be summarised as follows:

- Education and training systems are reactive and require time to adapt;

[1] *Based on data for 2011 or earlier compiled by IRENA in co-operation with REN21 and the International Labour Organization's green jobs programme.*

- The design and implementation of updated and new courses or programmes is a complex task;
- Institutions, teaching experience and materials are usually absent;
- Renewable energy is not fully represented in curricula.

4.4 DATA, INFORMATION AND AWARENESS BARRIERS

Energy data collection has for a long time focused on conventional energy systems. Renewable energy resource potential, production and consumption data can be difficult to obtain, non-existent or of poor quality.

In general, individual countries need accurate reports on energy consumption in order to design sound energy policies. However, the cost of additional data collection is often an obstacle. Yet implementing a poorly designed energy policy is much more costly than collecting data. There are other problems. Renewable energy usually comes from non-commercial sources such as traditional uses of biomass or is decentralised. This makes it difficult to measure, which often means off-grid energy production is excluded from official statistics. Methodologies and definitions need to be developed to obtain a more accurate picture of renewable energy worldwide. While the potential of renewable energy to mitigate climate change is well known, there is less awareness of its socio-economic benefits and real costs. Only recently have governments and research institutes started to consider these effects in greater depth.

The global availability of renewable energy resources and the modularity of renewable energy technologies mean they are an increasingly competitive alternative to conventional energy. This is especially true for decentralised and residential applications. The wider public has to be aware of the opportunities renewable energies can provide so that they can make full use of them.

Data, information and awareness barriers can be summarised as follows:

- Low availability and variable quality of renewable energy data;
- Lack of information on renewable energy resource potential;
- Lack of information on the socio-economic benefits of renewable energy;
- Lack of standards, which damages the reputation of renewable energy technologies;
- Generally, a low level of awareness within institutions and the population as a whole about renewable energy, including its residential use.

4.5 SOCIOCULTURAL BARRIERS

Barriers related to societal and personal values or norms are affecting the perception and acceptance of renewable energy technologies. Obstacles may arise particularly from inadequate attention to sociocultural concerns. These include concerns about behaviour, natural habitats and natural and human heritage sites, impacts on biodiversity and ecosystems, landscape aesthetics and water/land use and rights and availability for competing uses (IPCC, 2011).

Social acceptance is an important consideration in the rapid and significant scale-up of renewable energy to help meet climate change mitigation goals. This is because large scale implementation can only be successfully undertaken with the understanding and support of the public (IPCC, 2011).

Sociocultural barriers can be summarised as follows:

- Public expectations of cheap and abundant electricity;
- Aesthetic and environmental concerns;
- Competing uses of water and land.

5. IRENA Approach to Capacity Building

5.1 IRENA STATUTE

Acknowledging the importance of capacity building for achieving the IRENA goals, its founding countries stipulated a specific capacity building mandate in its Statute.

"Article IV - Activities

A. As a centre of excellence for renewable energy technology and acting as a facilitator and catalyst, providing experience for practical applications and policies, offering support on all matters relating to renewable energy and helping countries to benefit from the efficient development and transfer of knowledge and technology, the Agency performs the following activities:

1. In particular for the benefit of its members the Agency shall:

[...]

d.) improve pertinent knowledge and technology transfer and promote the development of local capacity and competence in Member States including necessary interconnections;

e.) offer capacity building including training and education to its Members".

5.2 THE MEANING OF CAPACITY BUILDING

Capacity has been described variously as the ability of an organisation to function as a resilient, strategic and autonomous entity (Kaplan, 1999); the ability of people, organisations and society as a whole to manage their affairs successfully (OECD, 2006); the ability of individuals, organisations and societies to set and achieve their own development objectives (UNDP 2008); and the ability of a human system to perform, sustain itself and self-renew (Ubels, Acquaye-Baddoo and Fowler, 2010).

These descriptions all embrace the concept of capacity building as the process through which individuals and organisations marshal and use their resources to develop and sustain their effectiveness.

Capacity building refers to the process of improving individual skills and/or organisational competence as well as nurturing supportive patterns in social relationships (Ohiorhenuan and Wunker, 1995). The process specifically means that individuals acquire technical and managerial expertise and performance capabilities. It also means organisations and communities acquire and mainstream systems, processes and structures to become more efficient and effective.

This set of concepts is now broadly accepted in the development field as the paradigm for capacity building:

- At the ***individual level***, capacity building refers to the process of changing attitude and behaviour, typically through knowledge, skills exchange and training. It also refers to other mechanisms such as learning-by-doing, participation and the exercise of ownership.

- At the ***organisational level*** capacity building involves strengthening performance and function. It does this by developing mandates, tools, guidelines and management information systems that facilitate and catalyse organisational change. It is also concerned with strengthening the relationship between individuals in the organisational setting and their links to their environment.

- At the ***system level*** (the "enabling environment"), capacity building is concerned with the overall policy, economic, regulatory and accountability frameworks within which organisations and individuals operate. Relationships and processes between organisations, both formal and informal, as well as their mandates, are also important.

The following concept is also included, in recognition of the need for co-ordination to avoid a delay or failure in important decision-making,

» Functioning, ***collaborative systems***, ensuring the proper flow of information between relevant institutions, are essential to the construction of a framework conducive to capacity building in the sector.

5.3 IRENA APPROACH

IRENA is a newly established international and governmental organisation entirely dedicated to the promotion of renewable energy. As such, it is a unique organisation mandated by governments worldwide. However, the renewable energy community is already made up of a whole range of organisations from the public and private sector and civil society. Many organisations, programmes and projects are engaged in capacity building.

For IRENA to be effective it cannot become active on all levels and it cannot duplicate the work of others. It will maximise its impact by drawing on its unique position as an intergovernmental organisation and its diverse and global membership to achieve its capacity building mandate. It will pool and promote the sharing of best practice and lessons learnt and play a convening and co-ordinating role, aligning existing initiatives. In an effort to facilitate a positive human resources framework for renewable energy, IRENA will bring together a number of stakeholders to combine their expertise in different fields relevant to the deployment of renewable energy. These include governments, other international and regional institutions, multi- and bilateral funding organisations, academia and the private sector. IRENA will thereby facilitate the scale-up or replication of programmes and projects that have been proved successful. To achieve this goal, it will foster dialogue, networks and partnerships between organisations and individual nations.

Governments are the primary clients of IRENA and the IRENA mandate is to promote renewable energy adoption in all its member countries. All work must be aligned to support governments in their effort to achieve national renewable energy targets.

IRENA must determine how to focus its capacity building efforts. Member countries have reached different levels of sophistication as far as renewable energy deployment is concerned. They will, therefore, require different levels of support.

These differences will be reflected as projects are implemented. Countries with advanced renewable energy sectors will be able to support the IRENA capacity building work in countries with a less developed renewable energy sector. This can be achieved by sharing experiences and lessons learnt and facilitating access to expertise on specific issues. IRENA will explore how to leverage this goodwill in order to be practical and achieve an impact at ground level despite its global remit.

IRENA has developed the Renewable Readiness Assessments (RRA) to assess the status of and prospects for renewable energy deployment in a particular country. The RRAs are a process driven at a national level. They provide an excellent tool for initiating engagement and facilitating an inclusive process of dialogue that feeds into renewable energy strategies. It also identifies a set of agreed actions across the renewable energy value chain based on national priorities. The IRENA capacity building services naturally follow on from RRA results.

IRENA will act as facilitator and catalyst, advocating education and training for renewable energy globally. To achieve this, IRENA will work closely with the renewable energy community consisting of a wide range of stakeholders. In particular, IRENA will do the following:

» Assess the conditions and frameworks in which the skills and capacities required for renewable energy implementation are built. It will also develop pathways for creating a supportive human resources environment at a national and regional level.

» Forge partnerships for collaborating on capacity building efforts and achieving greater synergies;

» Facilitate inclusive exchange networks between member countries, funders and those running capacity building projects, as well as the private sector and educational institutions. These will ensure information is shared on needs, knowledge and best practice;

» Gradually take on an advisory and co-ordinating role aiming to discuss evolving areas for action and to channel available resources into renewable energy capacity building;

» Contribute to and facilitate structured processes for collaboration particularly with regional entities aiming to build reference centres for renewable energy training around the world.

Given the organisation's lean structure and lack of national and regional offices, it will maintain strong, open communication channels with member countries to better understand their priorities and ensure effectiveness.

IRENA will build on existing knowledge and structures identified *e.g.* during RRAs, and support partnerships for joint capacity building efforts. This will result in institutions able to respond to national and regional priorities and become reference centres for renewable energy knowledge and advice. As this progresses, IRENA hopes to leverage expertise that exists in its member countries to bridge the knowledge gaps as they become evident.

In following this approach, IRENA aims to build a culture of sharing, coherence and partnership.

5.4 PRINCIPLES

The strategy and principles laid out in the following section originate from consultations with member countries and organisations with a track record of supporting renewable energy deployment through capacity building.

The list below outlines the characteristics of IRENA:

5.4.1 Comprehensive

Sustainable capacity building cuts across all dimensions and barriers and must take place not in isolation but across all key intervention areas (chapter 6). This necessitates a shift from project to institutional setup. It means that, while tangible capacity building at all levels is important, it has to be mainstreamed into policy. Up-to-date, attractive conditions have to be created to sustain acquired knowledge locally. A common framework to assess skills and capacity gaps will be needed to give a comprehensive picture and allow for appropriate action.

5.4.2 Issue-based

IRENA also acknowledges that for future capacity building programmes to be successful, its services have to be demand-driven and tailor-made. Capacity building needs are as diverse as renewable energy sources, technologies and applications. Needs relating to specific issues will be met in order to ensure capacity building priorities are dealt with in line with national priorities.

5.4.3 Regional

It is important to recognise that some aspects of the success of a strategy are regionally specific, such as market structures, climate and language. Similarities are more likely to be found between neighbouring countries or within a region. This generates potential synergies between countries and helps move to joint action on relevant issues.

5.4.4 Participative and sustainable

Participation is the hallmark of all IRENA work. In order to complement existing initiatives, IRENA capacity building services make the most of existing experience, use structures already in place and co-operate with appropriate stakeholders

Local, national and regional stakeholders will be involved wherever possible and wherever they strengthen and complement current efforts to ensure action is sustained. IRENA involvement should result in structures that have built up expertise and become sources of knowledge, advice and training. Responses must be adapted to individual circumstances, given that the renewable energy sector is wide and complex and give the varying needs for capacity building in different countries.

5.4.5 Accountable

Monitoring and evaluation are critical to ensure continuous improvement of all IRENA capacity building activities and the delivery of quality outputs. In addition, they provide a basis for proper planning, managing and documenting of activities.

Monitoring will be an obligatory component of all the capacity building projects and activities IRENA intends to carry out. Targets and success indicators must be clearly defined in order to help monitor results, evaluate progress and propose corrective measures if needed.

6. Key Areas of Intervention

The importance of a supportive environment for the successful deployment of renewable energy is widely acknowledged. Creating this environment means producing the conditions for building a skilled workforce; successful technology transfer, access to affordable financing, access to networks and markets and transparent administrative procedures. This enabling environment therefore includes stakeholders from government, finance and the business community, academia as well as civil society (IPCC, 2011).

Capacity building efforts must focus on the following:

6.1 RESOURCE ASSESSMENTS

Dedicated policy and support measures are needed to create a market environment attracting renewable energy investments. To design the right policy and support instruments, policy makers need to understand the potential share of renewables in the energy mix and the potential costs.

The ability to answer those questions is often hampered by a lack of precise information on the intensity and distribution of the renewable energy potential. Uncertainty in these estimates directly translates into a decision-making risk. Hence the accurate estimate of renewable energy potential is a strategic factor affecting the deployment of renewable energy technologies.

Accurately estimating the resource potential requires large upfront investments in surveys, extensive consultations and a high level of technical knowledge. Information on the resource itself is not enough to make decisions. These also require an evaluation of the technical and economic potential, which factors in many of the geospatial, engineering, economic, and social constraints to renewable energy development.

The more refined the estimate of the potential, the more the input information required and the more local aspects need to be taken into account. For this reason, detailed estimates of the potential can only be conducted at national or sub-national level in partnership with the local government. Estimates need to be updated regularly because technologies evolve and local conditions change with time.

Up to now, many countries have depended mainly on the foreign expertise of a limited number of suppliers in order to investigate their own potential. The following range of issues needs to be considered when strengthening the capacity of resource assessments:

- ***Facilitate*** the institutional structures for and start up ***economically viable measurement surveys.***
- ***Support*** the analysis of the information and ***generation of resource maps.***
- ***Strengthen the ability to evaluate*** the technical and economic ***potential*** of a particular technology.

The following stakeholders need to be targeted:

Technical and research institutes.

IRENA will address capacities for the assessment of resource potential as follows:

- The technical institutes and countries involved in the IRENA Global Atlas initiative have been running capacity building programmes relevant to resource mapping for a long time. IRENA wants to identify and mobilize the existing programmes and investigate the possibility of an outreach programme that creates a single entry point for requests.
- A large amount of knowledge is already available in developing countries; however, a collaborative structure for improving and facilitating information and knowledge sharing is needed. IRENA wants to connect existing competence centres and support collaboration between continents. It would like to help initiate further prospecting in areas of particular interest in terms of renewable energy potential and support knowledge exchange.

6.2 DATA

Good, accurate energy data is the basis of analysis, policymaking and investment decisions. While other energy sources are well documented, renewable energy

data suffers from many gaps. These prevent a complete, accurate picture of renewable energy, especially in developing countries. This is often due to widely scattered producers and consumers, the low volumes concerned and the non-commercial nature of fuels such as biomass. Better quality data gives a more accurate picture of the renewable energy development by country and by technology.

The following range of issues needs to be considered when dealing with data and information gaps:

- ***Support data collection on the energy sector as a whole*** for renewable energy planning.
- ***Improve the harmonisation of data collection*** in renewable energy across different countries and regions.
- ***Regularly supply data free of charge*** in publications or on websites aimed at a general audience.

The following main stakeholders need to be targeted:

Public authorities whose task is to collect and analyse energy data.

IRENA will deal with energy statistics capacities as follows:

- IRENA will facilitate shared data collection experiences and help countries consolidate and expand the data they already have. A targeted capacity needs assessment will help identify those institutes with a track record and potential for interacting and collaborating. IRENA will facilitate a structured process that will support the development of appropriate and standardised data collection and analysis at national level.

6.3 RENEWABLE ENERGY PLANNING AND FRAMEWORKS

6.3.1 Renewable energy planning

Individual countries will have to transform their national and regional energy systems to make full use of the potential of renewable energy technologies. This transformation requires strategic long-term planning carefully considering the development of energy demand and required infrastructure. This planning needs to reflect cost and technical availability, geopolitical factors, social preferences and environmental concerns.

Political goals for renewable energy deployment must be consistent with the rest of the energy system, including infrastructure, to ensure system stability. The technical, economic and environmental implications must also be understood. Scenario analysis is a methodology that considers renewable energy deployment in the context of the whole energy or power sector with a longer term perspective. Sound policy strategies can be proposed based on scenario analysis that account for uncertainty and risk. Such assessment is the first step in designing adequate interventions that achieve political aspirations.

The following range of issues needs to be considered when strengthening energy planning capacity:

- ***Grid stability assessment:*** appropriate power sector modelling tools need to be applied to carry out grid stability assessments, identifying technical criteria for grid stability including system operation and technology solutions to ensure reliable power supply.
- ***Renewable energy planning studies:*** systematic analysis using modelling tools and scenarios to design renewable energy policies consistent with other development objectives and provide the basis for informed decision making. Analytical capacity needs to be built within a country or region to make the procedures sustainable.
- ***Promoting renewable energy planning dialogue:*** a roadmap approach helps to promote dialogue and development of action points for particular end use sectors.

The following main stakeholders need to be targeted:

Ministries and government agencies, transmission system operators, research institutes.

IRENA will deal with capacities for renewable energy planning as follows:

- IRENA model scenarios for power systems, particularly in Africa. Models and their respective findings are distributed to governments, project

developers and financing organisations. Power system models will be used for capacity building that will enable member countries to develop power sector strategies.

» IRENA will also work with the existing institutions providing capacity building for energy planning to update and strengthen their renewable energy component.

6.3.2 Policy and regulatory frameworks

A large variety of stakeholders are involved in the energy sector, which is governed by a complex web of laws and regulations. Governments, specialised government agencies, regulators, utilities and independent power producers (IPPs) need to understand this complex environment. They also need to understand correlations between policies and regulations, available and appropriate technologies, required financing and business models.

The recent growth in renewable energy use is due to renewable energy policies and support schemes. Appropriate renewable energy policies and regulations create favourable market conditions for deploying renewable energy. Policy and regulatory certainty is crucial for securing finance and developing a healthy private sector involved in renewable energy.

The following range of issues needs to be considered when strengthening policy and regulatory capacity:

» ***Co-ordination of policies:*** Existing policies for technology deployment such as energy, industrial, education, infrastructure, research, agriculture and transport policies need to consider their interaction with related fields. This will ensure they are adequately designed for the widespread development of renewable energy technologies.

» ***Understanding of policy design and implementation:*** until technology costs decrease, appropriate incentives for market development have to be identified and implemented. This includes setting up a regulatory framework for power production through IPPs. The creation of tools, such as standardised power purchase agreements (PPAs), will help provide stable tariffs and quality standards. Mechanisms must be devised to underpin appropriate, transparent tariffs that reflect the cost of generation. Specific regulations for integrating intermittent electricity sources need to be established.

» ***Existing energy access policies need to become more widespread:*** there is no need for complicated incentives to target the specific needs of the "base of the pyramid"[2]. It is enough simply to let electricity consumers and industry into the sector. This will provide them with much needed access to affordable and modern energy services.

» ***Private financing through public finance programmes:*** When designing targeted interventions, the most meaningful public finance programmes employ a flexible package of financing mechanisms, instead of a single or fixed set of mechanisms. This is a complex task as these packages may employ credit lines to local finance institutions; project debt financing; loan softening programmes; guarantees to mitigate lending risk; grants and contingent grants for project development costs; equity, quasi-equity and venture capital; or carbon finance facilities.

The following main stakeholders need to be targeted:

Ministries, specialised government agencies involved in renewable energy policy making, regulators, transmission system operators, public utilities.

IRENA will deal with capacities for renewable energy policy design and implementation as follows:

» It will work to reinforce capacities among member country policy makers to design an appropriate deployment strategy for renewable energy technologies. This will take place in co-operation with multilateral or bilateral agencies and with organisations mandated by individual countries to promote renewable energy. IRENA will be involved with creating and distributing tools and blueprints.

» IRENA will also assist member countries in identifying and accessing existing sources of funding.

[2] *"Base of the pyramid" or BoP refers to the population at the base of the global income pyramid.*

6.4 FINANCING FOR RENEWABLE ENERGY PROJECTS

Financial institutions play a critical role and it is therefore crucial that they have the expertise at hand to evaluate a loan request from several angles. These include its profitability, risks and appropriateness as well as the reliability of the technology chosen and the economic, social and environmental benefits it brings to a community.

Commercial banks, microfinance institutions and other (public) credit institutions need to build a thorough understanding of the renewable energy technologies lacking, industry standards and business models. These lacunae prevent financial institutions, particularly in developing countries, from lending to renewable energy projects. Alternative financing instruments are required if renewable energy technologies are to provide access to energy.

The following range of issues needs to be considered when strengthening the capacity of financing institutions:

- ***Build an understanding of the renewable energy business case:*** The financial community, from larger regional commercial banks to small rural credit or microfinance programmes, requires an understanding that the renewable energy project is economically viable. Financial institutions need to understand the business case, including the potential for the region, project economics, and cost structure and outcomes.

The following stakeholders need to be targeted:

Financial institutions such as commercial banks, microfinance institutions and rural credit programmes.

IRENA will deal with financing capacities as follows:

- It will work with relevant partners, *e.g.* development banks, to design and distribute business models, tools, learning materials and standardised procedures. These will help financial institutions increase lending to renewable energy projects. The outputs would mean financial institutions are better placed to assess renewable energy business plans and project risks.

6.5 PRIVATE SECTOR ENGAGEMENT

As previously mentioned, large investments are required to make use of renewable energy potential. Necessary investment capital cannot be provided from public budgets alone, particularly in developing countries, where public budgets are often constrained. Considerable investments will have to be made by the private sector once the enabling environment has been created (Chapters 7.4.1 and 7.4.2). The development of the renewable energy sector means mobilising private sector organisations and individuals for investment, equipment supply and technical and commercial exploitation. This requires a wide spectrum of skills and capacity ranging from technical to business/managerial skills.

In the public and private sector often the expertise needed to develop a potential business idea into an economically viable renewable energy project is inadequate. This results in the poor exploitation of renewable energy project opportunities, as plans do not meet the lending requirements of the financial institutions involved. This is further exacerbated by the financial institutions' own perception of high risk renewable energy project economics and low bankability.

The following issues needs to be considered when strengthening the engagement of the renewable energy private sector:

- ***Availability of a critical mass of human capital:*** Sufficient human resources with up to date knowledge and expertise of the latest renewable energy technology developments and best practice must be available.

- ***Facilitation of training for entrepreneurs and installers:*** Training on the appropriate renewable energy system design, installation, operation and maintenance is required to meet the needs of end-users. Without local capacities in place, project technical sustainability is at great risk since the quality of technical services cannot be maintained. Training in good management, marketing and accounting practices must be provided to increase successful implementation of renewable energy businesses.

- ***Strengthened co-operation with academia:*** research and development can be improved by

engaging with the private sector. This helps ensure that relevant issues are researched e.g. by higher education institutions. Private sector involvement in the update and design of study courses and programmes is critical to ensure qualifications are appropriate to the needs of renewable energy employers.

The following stakeholders need to be targeted:

Private sector associations, educational and financial institutions.

IRENA will address entrepreneurial capacities as follows:

- Entrepreneurship has in many cases proved to be a very successful approach to renewable energy deployment. IRENA will work with private sector associations and financial institutions to increase knowledge and understanding of renewable energy technologies and to communicate and continually improve business models.

- IRENA will focus particularly on educational institutions and the private sector to enhance education and ensure it equips employees with suitable technical and business skills. Entrepreneurs need skills to evaluate the potential of a business, develop business plans, make loan applications and drive a renewable energy project successfully through.

6.6 EDUCATION AND TRAINING

Although there is greater awareness of the effect of renewable energy on employment, educational systems do not yet supply enough sufficiently skilled workers for the renewable energy market. One reason for this is that educational systems are generally rather reactive to market developments. While education and training in the renewable energy field is still scarce, it is also concentrated in a few industrialised countries with comparatively well developed renewable energy sectors. Renewable energy is still comparatively immature, so the lack of education and training is aggravated by the shortage of professors, teachers and trainers with relevant experience. This means the capacity to design and implement renewable energy education and training programmes locally is often limited.

The following range of issues needs to be considered when devising the renewable energy curriculum:

- ***Renewable energy curriculum:*** Inadequately staffed educational institutions co-operating with universities or academia that have the necessary experience have proved they can bridge the gap in their experience. This is, at present, a random process. Systematically facilitating and supporting co-operation between universities will make an enormous difference to the renewable energy curriculum across the world.

- ***Visibility and accessibility of renewable energy education and training:*** To increase the accessibility of renewable energy education and training, its profile must first be raised. Information on education and training of this kind must be easily and freely accessible on a global platform.

The following stakeholders need to be targeted:

Education ministries, educational institutions including universities, vocational colleges and training centres.

IRENA will deal with capacities in the educational system as follows:

- IRENA will gather and distribute existing educational material with the aim of providing education professionals with the tools and materials to update and develop renewable energy modules.

- Working with other international institutions, IRENA will analyse skills availability in the renewable energy sector and identify the gaps to be bridged by education systems.

- IRENA will facilitate international partnerships, assisting educational institutions to build modules and curricula that will provide the skills required.

7. Implementation and Current Projects

The framework for IRENA programmes and projects is provided by the annual Work Programmes and Budget. These define objectives, goals, achievement indicators, activities, outputs and budgets for the year in question. The IRENA Work Programme and Budget is presented to and adopted by the IRENA Assembly. The present document will guide the development and draft of capacity building activities for future IRENA Work Programmes to 2015.

IRENA will not duplicate activities of others, as has been outlined in the principles in Chapter 5.4. As the global and intergovernmental organisation in the field of renewables, IRENA is best placed to pool resources and co-ordinate activities undertaken in the sector. It can develop and test new approaches while building upon existing efforts. Furthermore, IRENA strives to involve additional stakeholders in scaling up renewable energy through successful and co-ordinated capacity building efforts.

Several pivotal tools, projects and strategies are required to allow this strategy to be successfully implemented, and objectives and outcomes to be reached as explained in this document.

The following capacity building projects of IRENA will best allow strategic goals and key outcomes to be reached as defined in Chapters 5 and 8. These projects will ultimately support the achievement of the IRENA overall vision and mission of accelerated, widespread use of renewable energy globally.

7.1 READINESS AND CAPACITY NEEDS ASSESSMENTS

Renewable energy requires nothing less than a systemic shift, as it is highly diverse. It has many potential applications, such as residential, industrial, small or large scale and off-grid or on-grid. In addition, renewable energy can provide electricity, heating and cooling and fuel for transportation. The breadth of this scope means institutions as well as individuals face the need for new or additional skills and capacities.

These requirements are ideally addressed in an integrated capacity building strategy that aims to enable local personnel to work with renewables. It may seem like an easy task but is actually a complex process requiring a thorough evaluation of existing conditions and skills in the sector alongside an assessment of renewable energy targets. Without a sound understanding of the situation, measures are likely to be either ineffective or inefficient. They could ultimately prove unsuccessful.

An RRA provides a holistic assessment of conditions for renewable energy deployment in a particular country. It identifies actions necessary to increase readiness and overcome the main barriers, including skills shortages, to the deployment of renewable energy technologies. It covers all sources of renewable energy and end-user services. Individual countries select those of particular relevance.

In addition, IRENA has worked with experienced partners to develop a customised methodology and approach that provides modular guidelines and practical tools for planning and conducting comprehensive assessments.

- A thorough understanding of existing and lacking skills and capacities will help develop the appropriate national capacity building strategy that will allow plans to become the successful instrument of policy.

- Capacity needs assessments can also help gain a better understanding of the strengths of a particular country and can be integrated when developing the renewable energy sector.

IRENA will then bring in financially supportive multilateral and bilateral agencies. These will help carve defined pathways that solve key capacity problems in a particular country.

7.2 A GLOBAL REPOSITORY OF CAPACITY BUILDING INFORMATION

A multitude of stakeholders are active in the renewable energy field. This results in a large quantity of programmes and projects that involve capacity building. The information on activities and organisations is scattered around the world and thus only available to limited groups of people. This means resources are less effectively and efficiently used.

IRENA therefore aims to become a global repository of capacity building information relevant to renewable energy. . This includes building global databases on education and training and at the same time providing information on the mandate and objectives, approach, capacity building and geographical scope of funding organisations. This information allows interested partners to successfully team up with other organisations. Alternatively, it makes it easier for particular countries to select the appropriate supplier to approach.

IRENA has started a mapping exercise to make this information publicly available.

The global repository will help IRENA fulfil its capacity building mandate. In addition it will do the following:

- Increase transparency and make capacity building information publicly available through a single source;
- Allow the co-ordination of activities;
- Allow individual countries to approach the appropriate funder and experienced executive so that they can fulfil their renewable energy goals;
- Provide countries with a 'reference' database and the possibility to connect with other countries who have implemented similar projects or programmes.

In addition, IRENA will build a repository of capacity needs which would be fed with the outcomes of capacity needs assessments. It will help IRENA to do the following:

- Gather existing needs;
- Allow funders and executives to identify projects and programmes;

Analysing the databases will gradually help to develop recommendations and guidance for the better use of existing synergies. It will also reveal areas or topics not covered at present that IRENA could take up.

7.3 REGIONAL CAPACITY BUILDING INITIATIVES

As a follow-up to the regional engagement initiated in 2011 (Chapter 3), with the adoption of the 2012 Work Programme, governments requested IRENA to design and implement regional capacity building initiatives in close co-operation with local partners. These consisted of the Economic Community of West African States (ECOWAS) region and the Pacific Islands and the Latin America and Caribbean (LAC) region. The ECOWAS proposal is at an advanced stage and is described here as an example.

The ECOWAS Centre for Renewable Energies and Energy Efficiency (ECREEE) and IRENA both have a mandate from their member countries to accelerate renewable energy adoption through, among other things, capacity building. They have joined hands to support the ECOWAS member countries in their effort to modernise energy services for underserved populations using renewable energy. In doing so, ECREEE and IRENA will adhere to a set of guiding principles to ensure the sustainability of the initiative. These consist of demand orientation, comprehensiveness, regional perspective and stakeholder participation.

The initiative was jointly developed against the background of a consultative process that took place in 2011 and early 2012. This consisted of the IRENA-Africa High Level Consultative Forum, a regional capacity needs assessment for renewable energy and a renewable readiness assessment pilot in Senegal. It also included a brainstorming session on policy advice and capacity building with African government officials and bilateral consultations.

The findings from these consultations and processes were taken into account alongside the regional knowledge of ECREEE. This was how the present initiative took shape. It aims to provide capacity building support for the development of a regional and self-sustaining market for on- and off-grid PV applications, encompassing grid-based power production, productive and community applications and residential installations.

This focus was selected as the region is generously and widely endowed with solar resources. The resource is comparatively steady. In addition, PV technology costs have fallen considerably over the last few years, making it a competitive solution for rural electrification as well as decentralised on-grid electricity generation. Nevertheless, customised strategies, frameworks, incentive schemes, alternative financing and business models will be required to take this development further.

As a result, the initiative targets the institutional, policy and regulatory frameworks; financing of PV projects; promotion of renewable energy entrepreneurship; and establishment of updated higher education in renewable energy.

The efforts undertaken in this field will be sustained through the establishment of a renewable energy policy network managed by IRENA. This network will share best practice and lessons from individual countries and link policy makers and/or experts across the world.

The initiative will develop curricula for entrepreneurs and financial institutions and will support the establishment of up-to-date renewable energy modules and programmes in universities as appropriate and required. This will be achieved by establishing partnerships between academic institutions in ECOWAS with academic institutions elsewhere that have long standing experience in teaching renewable energy.

ECREEE and IRENA will work with the relevant stakeholders from the region and the international renewable energy community to ensure a high quality, successful initiative. The initiative will be funded by ECREEE, IRENA and the governments of Germany and the United Arab Emirates who made a donation to IRENA for this purpose.

7.4 IRENA RENEWABLE ENERGY LEARNING PARTNERSHIP

The IRENA Renewable Energy Learning Partnership (IRELP) has been designed for worldwide use by learners – including students, vocational trainees and other professionals looking to develop and update their renewable energy knowledge; education and training providers; and government entities and decision makers. It can be accessed at www.irelp.org.

IRELP offers a global repertoire of renewable energy education opportunities including a library containing training material; a database of webinars, study and training programmes; an e-learning platform where students receive support through e-learning lectures and tutorials and a knowledge exchange corner (Forum) in which professors and renewable energy experts can participate. It is thought that the Forum will in turn stimulate the further development of renewable energy modules and study programmes.

IRELP provides instruction on cross-cutting issues such as policy, finance or access to energy, as well as technical training. Its creation has been inspired by market needs. It helps IRENA fulfil its mandate to accelerate the global deployment of renewables.

8. Key Outcomes

IRENA capacity building services have produced an increased number of skilled and appropriately qualified workers who have acquired a profound knowledge of renewable energies and technologies. This means they can make strategic decisions and also ensures their employers, institutions or renewable energy industries, are carrying out their mandate effectively and efficiently. Hence they achieve a positive long-term impact on renewable energy deployment in their own countries.

IRENA aspires to build institutional and individual capacities as outlined below in line with the IRENA Statute and with the roles identified in the proposed MTS (Chapter 6.3).

8.1 GLOBAL VOICE

IRENA provides a comprehensive data and information base for governments, investors, public and industry players to support decision making in favour of renewable energy. To do so, it provides a global web space to share and distribute capacity building information, provide access to expertise and highlight topical issues or actual developments. IRENA is the main port of call for individual countries on renewable energy, development, funding, education and training providers.

As the global voice for the sector, IRENA will draw attention to flaws and promote solutions.

For this purpose, IRENA offers a range of global databases and materials. IRELP is a core tool and provides a one-stop-shop on education and training. This will supply information and materials on a global scale and will facilitate co-operation with universities across continents.

8.2 ADVISORY RESOURCE

IRENA assists countries in building their technical and institutional capacity and their own business case for renewable energy and technology deployment. IRENA advises and supports countries in developing their own capability to master the whole value chain.

As far as its capacity building services are concerned, IRENA helps countries build their own capacities in both public and private sectors. This helps them assume their role in transforming energy systems and provides their populations with renewable energy services. IRENA works with well respected partners on appropriate methodologies and approaches. These are used to strengthening institutional capacities and support the development of national capacity building strategies with a longer term perspective.

Working with its partners on regional and national level, IRENA is in a position to improve the understanding of the optimal institutional setup and framework conditions for deploying renewable energies. A number of customised networks are being established to provide advice for instance to policy makers or university staff.

8.3 NETWORK HUB

IRENA is at the top of the various national, regional and global renewable energy capacity building programmes. IRENA is the broker and accelerator of these programmes and understands their range and performance. IRENA brings together individual countries and stakeholders looking for capacity building providers and funding and service organisations. It facilitates cross-country co-operation and the construction of national peer groups. This means it promotes the replication of best practice to help governments achieve their renewable energy and development goals.

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