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Green jobs and renewable energy: low carbon, high employment

The global economy is highly dependent on energy supply. A world without energy is a world with limited economic activity. Even in our everyday lives we depend heavily on energy – energy which is mainly based on non-renewable resources such as fossil fuels. These traditional energy resources are being consumed much faster than they can be created, and are a major contributor to carbon emissions.

Our reliance on energy to supply power for our homes and businesses requires a fundamental shift towards renewable and sustainable energy. The transition to renewable energy could create new jobs, while at the same time reducing emission levels and providing millions of people worldwide with access to sustainable energy.



Renewable energy and decent jobs

Renewable energy has a demonstrated job creation effect. For example, energy created through solar photovoltaic cells, landfill gas, or biomass plants have a higher number of jobs created per unit of energy produced than energy produced through conventional sources.

The positive job creation effect of renewable energy is a result of longer and more diverse supply chains, higher labour intensity, and increased net profit margins. Jobs in renewable energy can be created directly and indirectly along the entire value chain, including in the manufacturing and distribution of equipment; the production of inputs such as chemicals; or even in services like project management, installation, operation, and maintenance. Those working in the agricultural sector, particularly women and the youth, can benefit from job increases in the harvesting of feedstock and other biomass. Improved energy supply through renewable sources can also contribute to the expansion of existing economic activities in other sectors. Jobs created through renewable energy production furthermore carry the benefit of less hazardous working conditions.

Employment in renewable energy can mean new opportunities to enter into innovative dialogue arrangements between workers and employers, increasing the quality of jobs when compared to traditional energy sectors. This not only means more jobs, but better and decent jobs.

Of course, as the demand for energy from renewable sources increases, it is expected that there will be a decrease in demand for oil, coal, and gas. However, recent studies show that renewable energy projects can offset job losses from a decline in extractive industries and can in turn create a net employment gain.

Opportunities in Namibia

- Solar energy: Namibia has one of the highest solar radiation regimes in the world
- Wind energy: The coastal regions have high average wind speeds which are ideal for the installation of large wind parks
- Biomass energy: In non-desert areas, the potential for energy from biomass is estimated at 10–42 MWh/ha
- Hydropower: The Lower Kunene, Kavango and Lower Orange rivers yield opportunities for hydropower plants.



Renewable energy and jobs potential in Namibia

Around 60% of the Namibian population does not have adequate access to grid electricity. In rural areas people rely on firewood for everyday tasks. In urban informal settlements households spend an estimated N\$120 per month on wood for cooking purposes. The country is also highly dependent on imported fossil fuels (coal) and petroleum products for its power stations and on direct energy imports, mainly from coal-fired plants in neighbouring countries.

Namibia's 1998 White Paper on Energy Policy showed the employment creation of the largely fossil fuel-based energy sector to be low. It underlined that like in most countries, the sector is not a large employer and encompasses mainly low- or semi-skilled jobs. A more significant number of energy-related jobs are created indirectly through construction, retail, manufacturing and related services.

Recent policy documents, such as Vision 2030 and the National Development Plan 4, stress the importance of economic development, based on the principles of sustainable development. This provides opportunities for the full deployment of renewable energies in Namibia and subsequent job creation.

The Namibian Rural Electrification Master Plan (REMP) and the Off-Grid Energisation Master Plan (OGEMP) recognise the dual importance of environmental and social considerations relating to energy supply, and propose a decentralised approach to renewable energy production to increase access to energy in rural areas.

The installation of energy shops in rural areas as one of these strategies has already yielded positive results through increased access to renewable energy as well as job creation. This strategy also supports distributors and hardware shops selling solar technology and individual buyers with Solar Revolving Fund loans. This demonstrates the potential of job creation in expanded solar energy production in Namibia, which is still underutilised.

Some solar energy technologies can be produced locally and can create new jobs throughout the value chain. The production of simplified solar water heaters has great green job creation potential, while large-scale photovoltaic installations can provide long-term jobs and serve as a means to upgrade the skills of existing workers. Materials and services for the installation can be purchased from local companies thereby creating or sustaining additional jobs in the value chain.

New technologies – new occupations – new skills

New technologies demand new skills. If not addressed at the onset, a lack of suitable skills can create bottlenecks when introducing technology to drive the adoption of renewable energy.

Retraining and supplementary training can be the answer to overcome these challenges, as skills needed in the renewable energy sectors do not necessarily differ substantially from those in conventional energy sectors. As new installations are undertaken, the skills set demand might shift to a decreased focus on manufacturing and installation and a greater demand for maintenance and management skills. Targeted short-term programmes, for example retraining electricians to become installers of photovoltaic solar panels, are a practical solution to overcome the skills set challenge. Others, such as potential managers or engineers, will need additional training. The creation of new professions in renewable energy has the potential to integrate vulnerable groups in the labour market, such as women and young people, through targeted training.

Creating an enabling environment through policy co-ordination, social dialogue, and public awareness

Government and its social partners play a key role in driving the change to renewable energy production. Many barriers to the transition can be avoided through intensified social dialogue and policy co-ordination. Broad forums based on social dialogue, which include task forces and/or councils, have shown to be effective in incorporating skills and policy needs into environmental policies, reducing skills gaps and labour shortages, and sustaining positive employment and environmental effects over time.

Policymakers and social partners have the duty to promote decent work principles within newly created sectors. The policy framework must allow for workers to organise, and must include standards for working conditions and occupational safety which are tailored to the specific sectors and which are supported by sufficient enforcement mechanisms.

Financial investment will help drive the shift to renewable energy and job creation. The Solar Revolving Fund is one example of such financing schemes to support the adoption of a particular renewable technology. Examples from Bangladesh underline this, as funding mechanisms have had significant employment effects, especially for women and the youth, in downstream activities in the country.

Finally, awareness and general public understanding of the opportunities arising from a shift to renewable energies – both at the social and environmental level – are the cornerstones to acceptance and public support.

This background brief is part of an Information Campaign on crucial elements in greening the economy, from the perspective of workers, employers and the government. Subsequent briefs will touch upon Green Skills, Green Entrepreneurship, Green Jobs Assessment and Policy, and finally some sectoral perspectives on green jobs.

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This information campaign is a joint initiative by:

