



# Good Energy for All!

Climate Protection and Justice in the Energy Sector.  
Five Perspectives from Africa, Asia and Latin America

**MISEREOR**  
● IHR HILFSWERK

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Dr Bernd Bornhorst,  
Head of the Policy and Global  
Challenges Department (PGZ)

### Author

Kathrin Schroeder  
With contributions from  
Dr Almuth Schaubert and Armin Paasch

### Editor

Kathrin Schroeder,  
Marianne Pötter-Jantzen

### Layout and graphic design

Katja Schreiner/Atelier für Gestaltung  
Anja Hammers/MISEREOR

### Translation by

Dr Karen Leube

### Contact

Kathrin Schroeder  
kathrin.schroeder@misereor.de



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Photo: cpa picture-alliance

Worldwide, at events like the Paris climate summit, people are taking action to support a fair and climate-friendly energy transition.

# Pulling Out All the Stops for Climate Protection and Justice in the Energy Sector

**T**he Paris Agreement has called on the international community to limit global warming to well below 2°C and no more than 1.5°C if possible. It aims to ‘achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century’. This means that the amount of greenhouse gases emitted must not exceed the level that can be taken up by the biosphere (e.g. forest and soil) or that can be removed from the atmosphere through technical interventions. MISEREOR is working with its partners to meet this goal, first by exploiting all potential for reduction and embarking on low-carbon paths to development instead of waiting until risk technologies for ‘capture’, in particular of CO<sub>2</sub> emissions, seem inevitable.

The energy sector, based mainly on the fossil energy sources coal, oil and gas, is a key sector for climate protection. After all, it is responsible for one third of the global greenhouse gases. In light of the demand expressed in the Paris Agreement, there is little scope for additional emissions in the countries of the Global South. Yet in this region of the world, large sections of the population live without sufficient access to energy. This energy poverty restricts people’s fundamental needs and rights in a variety of ways.

Food and vaccines cannot be kept cool, energy for cooking is more costly than the food itself and the lack of lighting on the roads comprises a safety risk, especially for women. Access to sufficient energy is a cornerstone of adequate development opportunities. In line with this, Sustainable Development Goal (SDG) 7 calls for equal access to clean, sustainable and safe energy for all by 2030. This includes both electricity and energy for cooking and transport.

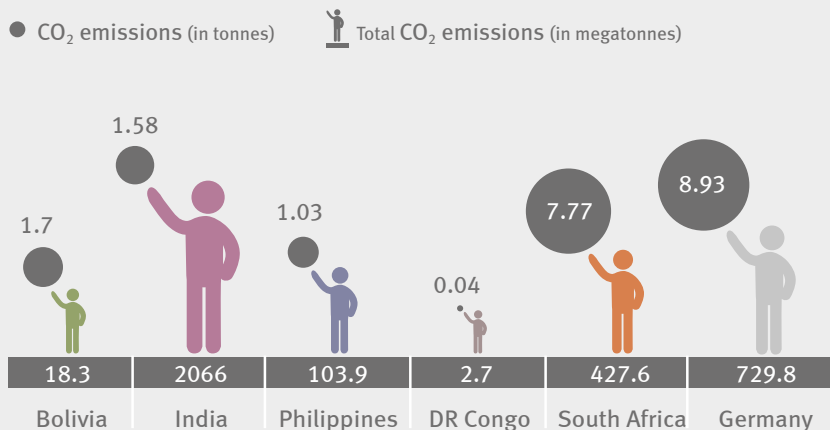
However, the prevailing energy system also threatens development opportunities, beyond the climate change. Raw materials extraction, the operation of coal-fired and nuclear power plants, as well as the construction of dams are repeatedly associated with grave human rights violations in many countries. The right to health, food and water is acutely jeopardised and violated in areas where mining and power plants pollute the air, soil and water, which are part of the basic living conditions of the surrounding communities.

## Renewable energy offers a wide range of opportunities.

And for decades, there have been marketable alternatives that can be used for various purposes, from the household



## Greenhouse Gases 2017



Source: International Energy Agency 2017: Key World Energy Statistics

level, to transport, as well as for the power supply for large-scale consumers. The Noor solar power plant in Morocco and the community solar panels installed on the health centres of the Kisantu Diocese in the Democratic Republic of the Congo are examples of the various levels at which renewable energy creates new facts.

Three of the four largest labour markets for renewable energy<sup>1</sup> are located in the emerging economies of Brazil, China and India. Examples from MISEREOR's energy dialogues also demonstrate that decentralised systems give rise to a variety of employment opportunities, for instance, for technicians, solar lamp vendors or for managers of an energy cooperative. Access to energy enables many people to continue to be productive after dark or educate themselves for the first time. More efficient stoves offer health benefits, especially for women and children. They also reduce the amount of time that women and children have to spend collecting wood. But most of all, they reduce greenhouse gases and other environmental damage.

### In Dialogue with Civil Society

Sufficient renewable energy for all is not just a vision, but is a fundamental component of a future strategy that jointly addresses climate protection and a good life for all. In the energy sector, the interconnections between business and politics are particularly strong. Corruption, nepotism and powerful lobbying organisations working on behalf of the large energy companies often hamper participation by civil society. In contrast to this, MISEREOR is convinced that civil society can make particularly valuable contributions when it comes to shaping energy systems such that climate protection and energy provision are aligned with poverty reduction.

To this end, MISEREOR initiated a civil society dialogue about energy systems of the future in six countries of the Global South. During the course of these dialogues, six country studies were compiled by MISEREOR partner organisations, which comprise environmental and development

organisations and think tanks for social issues. However, they all have in common their work with and for economically and socially disadvantaged people in their respective countries.

The data situation in the countries considered here was very diverse, and the results thus comparable to only a limited extent. For example, the degree of access to electricity, which is a valuable parameter, is worthless if it is measured based on the installation of a power line up to the entrance of a village rather than on the number of households that obtain electricity. This is the case in the Philippines and in India, for example. Consequently, all of the studies also refer to other data sources

in order to be able to describe the energy provision to poor population groups. Further sources of information for this document include several thematic studies on human rights violations in the energy sector.

### Holistic View of Energy Issues

The studies served as the basis for discussion for civil society actors when examining the status quo of the energy systems in the respective country. Some country studies set special focuses concerning key development challenges, such as urbanisation or the overuse of biomass resources. But all six studies were compiled with a particular focus on the living situation and perspective of people living in poverty.

At dialogue events with representatives of civil society organisations, criteria for an energy system of the respective country and visions of its future were discussed and developed. At the same time, common features and generally valid criteria for a global debate about 'Good Energy for All' are becoming apparent. In the energy dialogues, energy and climate experts held discussions with experts on human rights, poverty alleviation and participation. Including different perspectives allowed the significance of the topic of 'energy' for society in general to be explored. It became clear, for example, that to combat energy poverty effectively, it is essential to connect local realities of poor population groups with energy strategies, which are often developed exclusively at the national level. Reliable, affordable access to electricity is often the key issue for the people concerned in this area. At the same time, there are a number of additional less obvious layers to being disadvantaged and energy poverty that also have to be fought. In many countries, the participation of the people affected or of civil society actors in energy policy issues is not provided for in general, or their participation is even deliberately obstructed.

<sup>1</sup> IRENA 2016: Renewable Energy and Jobs.

# Coal: Number 1 Climate Killer

Coal is the energy source with by far the highest CO<sub>2</sub> emissions and thus the primary cause of climate change, which spells poverty and poses an existential risk for millions of people.

Historically, most of the emissions from the coal industries of the **industrialised countries** came about during the 20th century, although China has added to the emissions since the start of the 21st century. In order to curb climate

to a coal tip in Limay on the island of Luzon were able to prove an increase in the number of cardiovascular, skin and respiratory disorders caused by coal dust contaminated with heavy metals and radioactive components. Coal mines such as the mine on Semirara Island cause water pollution, the destruction of mangrove forests and toxins in the water and the air.

**India's** energy sector and industry is largely based on coal. There too, there is huge domestic potential for coal (87 billion tonnes), primarily hard coal. Eighty-one per cent of the primary energy supply consists of fossil energy resources and scenarios predict an overall heavy increase in energy consumption for India, as well as an increase in the use of coal. India's coal business is primarily run by state-owned companies such as Coal India Limited (CIL). In India, human rights violations by government agencies and by companies associated with the coal industry are frequently reported. These violations extend from land conflicts and displacements to brutal oppression of critics from civil society and even murder.

**South Africa's** dependence on coal is also obvious: 70% of the primary energy consumption and 80% of the electricity come from coal. In South Africa too, environmental destruction and human rights violations related to coal mining and coal-fired power plants are reported. The use of coal in South Africa also leads to extremely high levels of greenhouse gases there. In addition, people in South Africa's coal regions protest in particular against the acid mine drainage into the groundwater and the ensuing contamination of the drinking water, the impairment of the health of the people living near the mines and the diminished agricultural productivity in the regions.

change, coal has to be replaced by low-carbon energy sources. Even if many developing and emerging countries currently rely on coal to combat energy poverty in their countries – often encouraged by international coal companies – this expansion of coal mining and coal-fired power plants must be stopped. The negative impacts on the climate, the environment and health are already visible today, as examples from the energy dialogues show.

In the worldwide comparison of greenhouse gases, the **Philippines** is ranked 39 and the main reason for this is the emissions from coal-based power generation (43%). The Ministry of Energy is planning a massive expansion of coal-fired power plants. While a large percentage of the coal used in the Philippines must be imported, the domestic resources (an estimated 2.4 million tonnes) are to be extracted to a higher extent. There is a very active anti-coal movement in the Philippines in which many church actors are involved. They protest against the dangers of coal mines, storage deposits and power plants for people and the environment. People living next

Not an engine of development: climate change can only be contained if most of the deposits remain in the ground.



Photo: Nkosi/MISEREOR

# South Africa: Too Much Coal and Not Enough Energy for the Poor



**Human Development Index**  
Ranked 119th out of 188

**Area**  
1.219.090 km<sup>2</sup>

**Population**  
55,011 million

**F**ossil fuels dominate South Africa's primary energy supply. Coal is mainly utilised to generate electricity and for industrial processes, but also for producing synthetic fuels. Crude oils are predominantly used in the transport sector. Eskom, a company fully owned by the South African state, is the largest electricity producer (94%) and network operator. Eskom presently operates 13 coal-fired power plants, which are supposed to run until 2024-2050 according to current plans. Two large coal-fired power plants, Medupi and Kusile, are presently under construction. They are intended to have a lifespan of 60-65 years.

South Africa possesses large coal and biomass reserves. Imports satisfy the demand for oil, natural gas and uranium. The country has great potential for solar and wind energy, which at present is barely used, however. Only a small share of electricity is generated through hydropower because South Africa's climate zones are not conducive for this. The Integrated Energy Plan (IEP) was updated during the compilation of the study. It lays the framework for planning the energy infrastructure in the future. The government's nuclear programme in particular has sparked a great deal of controversy in South Africa. So far South

Africa has one nuclear power plant, in Koeberg, north of Cape Town. However, the IEP provides for a construction of several new reactors with a total power of 9.6 GW, which is highly controversial.

Coal is the source of 80% of South Africa's electricity, and 75% of all energy production derives from fossil fuels leading to high levels of greenhouse gas emissions. The energy and transport sector consume most of the energy, followed by private households. Within the transport sector, 85% of the energy is used for road traffic. So far there are few alternatives to motorised mobility both in most cities and for overland transport. Additionally, the South African energy system suffers from inefficiency, owing especially to obsolete infrastructure.

If all of the fossil power plants provided for in the IEP were built, lock-in effects,<sup>1</sup> a continuing increase of greenhouse gas emissions and lost investments are to be feared since the Paris Agreement defines targets mandating a worldwide reduction of the use of coal.

## Energy Poverty in South Africa

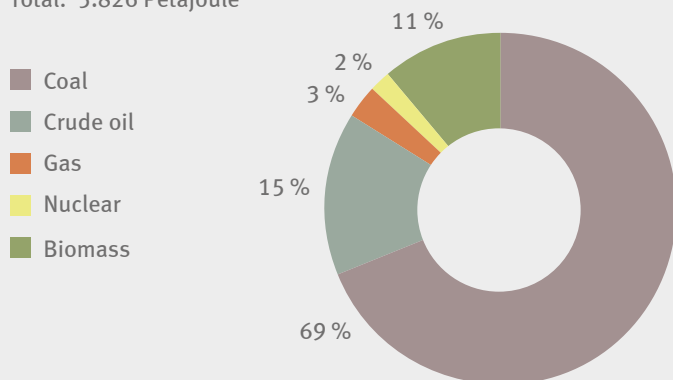
South Africa has adopted various policy instruments in the post-apartheid era aiming at reducing inequalities between ethnic groups, that have persisted for decades. This means that the data available on social inequalities or the living conditions of people living in poverty is adequate. The government has implemented several programmes to mitigate energy poverty, such as the Free Basic Alternative Energy Programme (FBAE). This initiative has significantly boosted access to electricity since 1990.

Participants in the South African energy dialogue criticised the poor implementation of many of these pro-

<sup>1</sup> Energy and climate policies use the term 'lock-in effect' to describe the path dependence of energy infrastructure. If a country for instance plans a mega dam or a coal-fired power plant, these presuppose a certain (rather centrally organised) distribution structure. At the same time operators – usually energy companies – expect economic profits from running the power plants for as long as possible. This makes investments in other distribution structures or energy sources less likely. The country is consequently basically 'locked-in' regarding its energy infrastructure.

## Total Primary Energie Supply in South Africa

Total: 5.826 Petajoule



Source: DoE Energy Balances (Aggregate), 2012. Unit: PJ, Integer Rounded



Photo: dpa picture-alliance  
 Due to its coal-based power generation, G20 country South Africa is among the world's 15 biggest emitters of CO<sub>2</sub>.

grammes, however, arguing that the projects do not achieve the desired results or deliver them to only a limited extent.

A nationwide survey of households evaluated access to energy in 2012. In this area the symptoms of energy poverty mainly manifest themselves in the availability of electricity and of energy sources needed for lighting, cooking and heating. In 2016, about 91% of households had access to energy. However, discrepancies existed between different regions, and especially between ethnic groups and settlement types. The majority of households used pre-paid meters to pay for energy. Especially for low-income households, access to electricity does not translate into availability of electricity. As soon as the household income is too low to purchase a new electricity voucher, individuals switch to alternative energy sources for heating, cooking and lighting (see Fig.). Several low-income households illegally share their electricity connection with neighbours. This causes problems in particular if the main recipient has qualified for a welfare programme, such as the FBAE Programme, which provides electricity with a value of at least 55 ZAR per month. This figure is based on household size and naturally does not take additional users into account. The subsidised amount of electricity consequently is no longer sufficient.

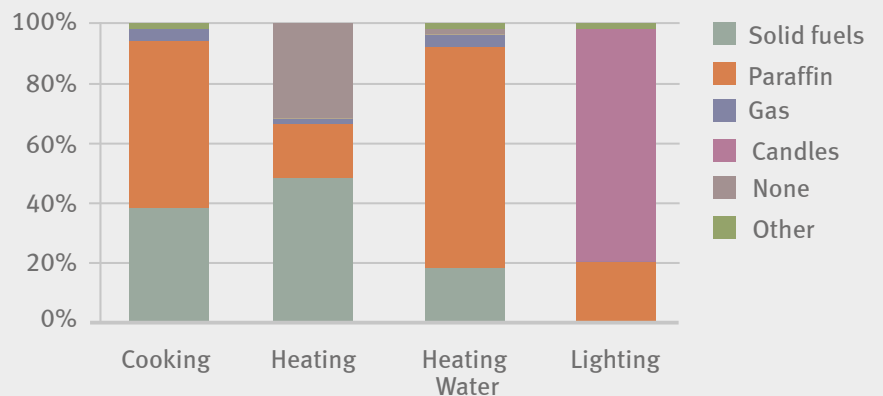
Significant differences can also be observed regarding access to means of transport. People living in poverty use other modes of transportation than wealthy individuals – the former resort to public transportation, bicycles or cover distances on foot.

### Low-carbon Development

During the energy dialogue in South Africa the present draft of the IEP was compared to studies undertaken by other in-

Energy for basic needs where is no access to electricity

(in per cent)



Source: Statistics South Africa 2012: Household Energy Survey





## ALTERNATIVES

### Civil Society Resorts to Legal Means

More and more civil society organisations are resorting to legal means as an instrument to fight for climate justice and fend off harmful energy projects. A network of South African non-governmental organisations has protested for several years against government plans to erect new nuclear reactors. They accuse the government of having been motivated by corruption rather than basing their plans on scientific results and economic assessments. Earthlife Africa (ELA) and the Southern African Faith Communities' Environment Institute (SAFCEI) filed a complaint against the nuclear programme before the Western Cape High Court. These proceedings were accompanied by the campaign #StopSecretTrillion-RandDeals, public hearings and lobbying. The nuclear programme provided for an output increase of 9.6 GW through nuclear power. The reactors for this purpose were supposed to be built in the province of Western Cape, which is already home to an outdated nuclear power plant (Koeberg). The court delivered its judgment in early March and ended the government's plans. The energy plan still has to be amended. Nonetheless, Eskom already put the procurement proceedings for the nuclear reactor on hold.

stitutions (e.g. CSIR<sup>2</sup>). Civil society organisations involved in the process are convinced that an energy revolution in South Africa is feasible. Achieving this does not necessitate building new nuclear power plants and increasing the capacities of fossil fuels, but presupposes increasing energy efficiency and deliberately expanding renewable energies. A decisive factor for South Africa could be that the options with the least environmental and health impacts are those that provide electricity at lower costs.

### Climate Protection and 'Just Transition'

MISEREOR's energy dialogue developed criteria for a sustainable energy system. These refer to the country's long coal tradition and the fields of action of job security, economic growth and poverty eradication.

- The energy sector's future development should seek to provide fair development opportunities for all citizens and focus on preserving planetary boundaries.
- The entire sector has to become more transparent – from the planning stage through to pricing.
- An energy revolution relying on climate mitigation and energy justice also has to consider the fair treatment of individuals currently working in the fossil energy sector ('just transition').
- Most importantly, however, the transition has to be implemented in a fair manner for those affected by poverty and has to take into account that energy consumption varies between different social groups as well as between genders.
- The transport sector needs a clear strategy aimed at providing secure, reliable and affordable means of transport for all people and goods.

The organisations involved in the energy dialogue specifically demand an energy policy aligned with low-carbon development and fairness. They further call for a corresponding amendment of the present IEP and resource plan. The phase-out of coal use and decentralisation have to be launched based on political will as well as clear laws and regulations. The state-run company Eskom has to lose its monopoly in order to make way for new energy sources through diversification. The transport sector also needs a clear strategy aimed at providing secure, reliable and affordable means of transport for all people and goods. The most important demand, however, concerns the fight against corruption in the energy sector, which so far has prevented true change from taking place. This applies to major projects, subsidies and, most of all, the nuclear programme.

This debate has only just begun, and civil society plays an indispensable role in advancing it.

<sup>2</sup> Council for Scientific and Industrial Research 2017: Electricity Scenarios for South Africa.



# Urban Land Use Impacts Energy Consumption

The measures a community takes to manage its land usage are decisive for its energy balance. Four factors mainly determine a city's energy demand: income (higher incomes correlate with higher energy demands), local climate, fuel prices, and housing density.

Providing adequate housing and infrastructure for as many people as possible in limited space is a huge challenge. Energy demands depend on the distance and number of routes that need to be taken. Thus, when building cities, the need for transport routes must be avoided. Durable infrastructure, such as that for transport and the associated developments of urban neighbourhoods, shape a city's energy balance over decades or even centuries. Avoiding the need for transport routes is an important lever for permanently lowering a city's energy demands. This can be achieved by **reducing land usage** and increasing building density.

Additionally, the building materials used to construct buildings and infrastructure significantly impact the carbon

footprint. It is important to use sustainable building materials for construction rather than steel and cement.

The examples of Atlanta and Barcelona clearly illustrate how **urban structures and mobility** are interconnected: while both cities have roughly the same population, their building areas significantly differ – at 4,280 square kilometres, Atlanta is more than 26 times larger than Barcelona. The consequences: Atlanta's traffic-related CO<sub>2</sub> emissions amount to 7.5 tonnes per capita, while in Barcelona, they amount to only 0.7 tonnes. This is also a result of deliberate urban planning. In the run-up to the 1992 Olympics, for example, Barcelona decided to retain the city's compact structure.

In 2050, 90% of **urban growth** worldwide will take place in Africa and Asia. Thus, in these regions it is especially important to engineer this growth, or rather new constructions, to ensure energy efficiency. For example, 25% of the future global energy demand could be cut if Asian cities were built in a climate-friendly manner.

Providing adequate living space and access to basic infrastructure for all people regardless of their income and social standing is one of the grand challenges for our world.



Photo: Harms/MISEROR

Cities often grow without planning. As the area's size increases, energy consumption for traffic increases accordingly.

# Philippines: Growth Versus Climate Protection?

**T**he Philippines is one of the countries hardest hit by climate change. The Global Climate Risk Index ranks it third among all countries worldwide, after Vanuatu and Tonga. Tornadoes and drought are noticeably stronger and occur more frequently than in other regions.

Parallel to this, the Philippine government is endeavouring to boost the economy to help more people escape poverty through growth in prosperity. This growth is based primarily on the use of fossil fuels.

The Philippines comprises 7,107 islands with 36,289 km of coastline, which makes it difficult to establish a central power grid. As a result, rural and urban households have different degrees of access to electricity. Declaring a settlement as having access to energy if a transmission tower is erected and a single household per settlement

can obtain electricity for a certain number of hours per day is misleading, however. Based on this measurement method, 94% of urban households and 73% of rural households have access to electricity. A study conducted by the

Department of Social Welfare and Development (DSWD), however, assumes that only around 50% of all households obtain electricity. For economically weaker population groups, the high costs of connections are a huge obstacle to installing one's own electricity connection. MISEREOR's partner organisations report that households have to pay for the costs of installing the electricity line from the transmission tower and the households themselves, along with the purchase of the electricity meter, costs poor households are often unable to afford. Moreover, electricity prices are often extraordinarily high compared to other countries. At 9 pesos per KWh (0.15 euros), prices in Metro Manila are the highest in South-East Asia.<sup>1</sup>

Over 60% of the Philippines' primary energy consumption is supplied by fossil energy sources. In addition to electricity generation, the transport sector is responsible for most of the Philippines' greenhouse gases. This concerns air and ship transport between the islands, as well as motorised transport, especially in cities. In 2015, coal-based power generation accounted for 44.5% of overall electricity production. According to information provided by the Department of Energy, another 24 coal-fired plants are planned up to 2025.

Yet the Philippines has huge potential for the use of various types of renewable energy and with the Renewable Energy Act, also has appropriate legislation in place. It is estimated that up to 250,000 MW could be generated from wind, solar and geothermal energy. The sustainable use of biomass has not yet been exhausted either.

## Energy Poverty in the Philippines

Analyses undertaken by the energy dialogue participants showed that energy poverty threatens human dignity and quality of life of people living in informal settlements, resettlement areas and remote regions. Access to energy and transport has a strong influence on an individual's chances of providing for one's livelihood or receiving an education.

These groups tend to live in inadequate housing with poor ventilation and use candles, kerosene lamps or wood stoves for lighting and for cooking. Such lamps and stoves

**Human Development Index**  
Ranked 116 out of 188

**Area**  
Around 300,000 km<sup>2</sup>

**Population**  
104 million



<sup>1</sup> <https://www.doe.gov.ph/energist/index.php/2-uncategorised/10997-meralco-drops-to-3rd-highest-rates-in-asia>





Photo: Harms/MISEREOR

In informal settlements, people often use wood for cooking and candles for lighting.

often cause fires and also increase the risk of developing chronic lung diseases. In 2013, the Philippine Statistics Authority reported that some 44% of households were dependent on wood and charcoal for cooking. Alternative energy for cooking, such as liquefied gas, is too expensive for low-income groups. In situations in which households are able to hook up to the grid, the connection costs are often particularly expensive and owing to power outages still not reliable.

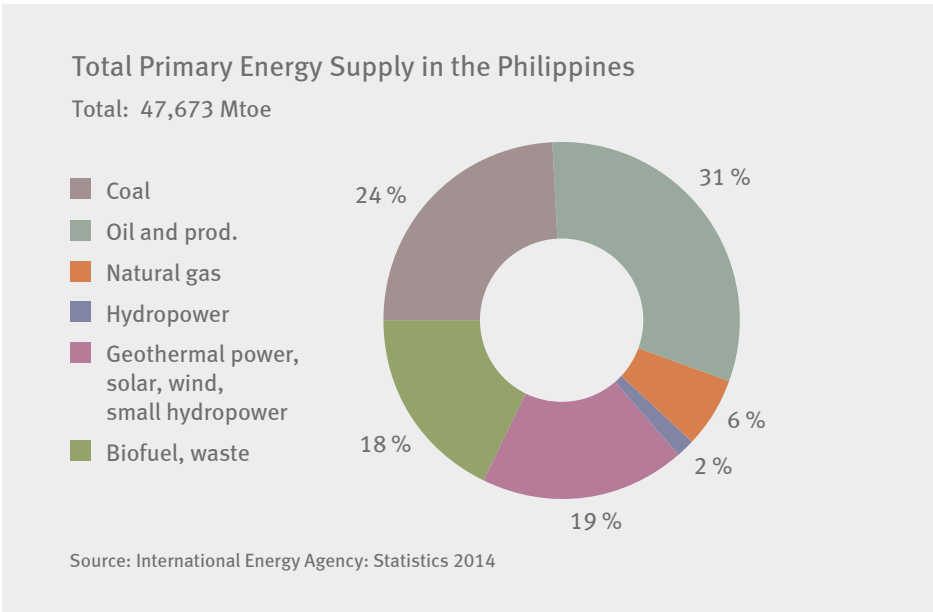
Experts working with MISEREOR’s partner organisations have observed that as soon as disadvantaged groups have access to micro plants with renewable energy, they are able to boost their standard of living, economic productivity and income. The educational opportunities for the children and their social lives also change for the better.

**Urban Energy Use**

Around 60% of the Philippine population live in cities, and many of them live in informal settlements. The urban population will dramatically increase in the coming decades. The need to shape this growth while taking into account the require-

ments for climate protection, adaptation to the effects of climate change, as well as for justice, is a huge challenge for the government, the administration and for civil society.

The dependence on fossil energy sources is particularly noticeable in the cities. The World Health Organization





(WHO)'s list of over 1,200 cities with the highest air pollution levels includes three cities from the Philippines: Baguio, Manila and Cebu. The transport sector accounts for 76% of this air pollution. The absence of a public transport system plays a key role in this situation.<sup>2</sup>

### Urban Planning and Climate Change

Residents of informal settlements, which are often located close to big cities, as well as commuters and informal vendors selling their wares along large traffic arteries are particularly hard hit by the polluted air. Emissions from coal-based power generation and the use of charcoal and wood for cooking also contribute to the pollution.

In the wake of Typhoon Ketsana, which claimed the lives of over 1,000 people in Metro Manila in 2009, urban development processes are increasingly geared towards adaptation measures that aim to make the consequences of climate change manageable. In Metro Manila alone, 1.2 million people living directly at waterways – nearly

10% of the population – are affected by the Metro Manila Flood Management Project. Throughout the Philippines, gigantic dyke and canal projects are planned that aim to protect the cities but, as in Tacloban, would uproot more than 60% of the population.

The civil society organisations participating in the energy dialogue thus call for climate protection to be included in urban development policy, as is the case for fair access by all societal groups to land, energy, transport and a healthy environment. For potential planned resettlements, 'in situ resettlements' must be accorded priority. Up to now, relevant funding mechanisms have been in place in the Philippines only in Metro Manila. Avoiding further geographic expansion of cities is a key factor for their energy efficiency. Yet mass resettlement is an important contributor to this sprawl.

Cities in the Philippines tend to be densely settled and many of them are located in coastal areas, making the people living there vulnerable to the effects of climate change. This



When typhoons or floods hit, informal settlements on the coast are particularly vulnerable.

Photo: Harms/MISEREOR



applies in particular to people in informal settlements, who up to now have had minimal involvement in decision-making and whose access to (good) energy and transport systems is highly restricted.

### **Transformative Energy: Systematic and Renewable**

The outcome of the energy dialogues was a change concept for the energy sector referred to as ‘transformative energy’. Not only must power production become decentralised, more efficient and more reliable; the energy system must also take the reduction of social, geographic and economic disparity into account, include the costs of environmental destruction in calculations, and support the need for development. To begin with, the huge discrepancy between ambitious climate protection rhetoric at international conferences and coal-friendly energy policies in the country must be eliminated. Representatives of Philippine NGOs consider the adaptation of legal conditions to be the main lever for doing so. In the view of the dialogue partners, legislation that is actually intended to regulate the energy sector in fact benefits large (energy) companies and tends to hamper the development of decentralised energy systems based on renewable sources.

- Transformative energy improves access to energy, is affordable and efficient. It is easy for communities to achieve in terms of availability, reliability and expense. It also promotes the use of local resources and strengthening of the capacities of the disadvantaged population by means of community-based renewable energy systems.
- The transport sector, which is responsible for nearly half of the greenhouse emissions in the Philippines, must be decarbonised, and the first steps must be taken in the cities. The expansion of public transport systems, which provide an alternative to motorised individual transport and, at the same time, give poorer population groups access to mobility, is a key factor here. Policy measures that are actually meant to serve to protect the climate, such as the elimination of jeepneys, which spew pollutants, must be checked with regard to their impact on the workers in this sector and be implemented with fair and culturally sensitive alternatives. For this ‘mobility transition’, local administrations, traffic planners and civil society representatives must work together.
- In Philippine cities, the planning process must take energy consumption into account, in addition to the adaptation to the anticipated consequences of climate change.

2 <http://newsinfo.inquirer.net/911175/metro-traffic-becoming-health-hazard-for-pinoy-ngo-study>



## ALTERNATIVES

### **Solar Lamps for Typhoon Victims and Community-Based Energy Systems**

In the wake of Typhoon Haiyan in 2013, the power grid in Cebu, Bohol, Samar, Leyte and on the islands of Panay and Negros collapsed. Non-governmental organisations distributed solar lamps so that at least light was provided to the survivors. Many of the users of these lamps noticed how reliably they operated and changed their attitude towards renewable energy. The many small hydropower plants organised on a cooperative basis with which village communities obtain electricity in remote mountainous areas or on small islands are positive approaches that need better conditions for permitting more people access to electricity.

Photo: Schwarzbach/MISEREOR

# India: Energy for One Billion People

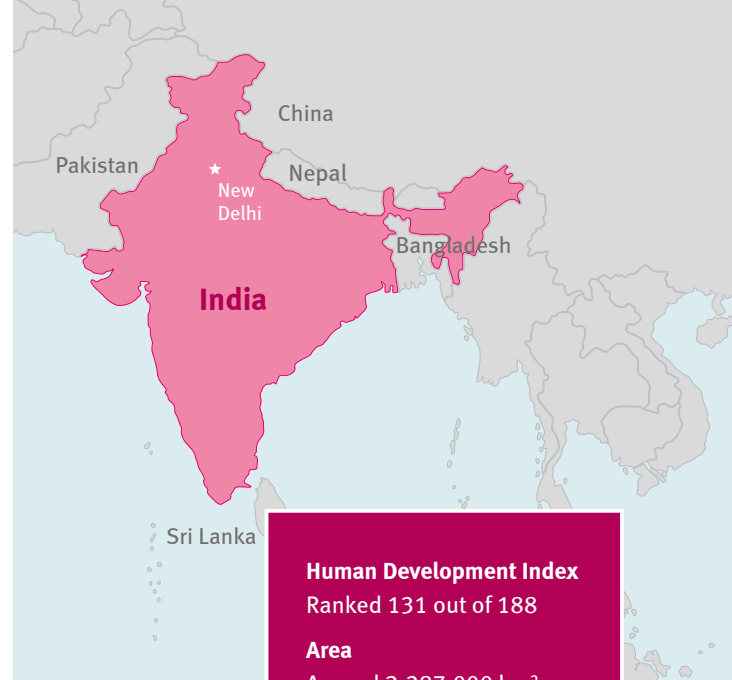
India is a country with a growing 'appetite for energy' with acute 'energy hunger'. The energy consumption by the industrial sector and other commercial types of use has increased dramatically in recent years.

However, the majority of the rural population lacks access to electricity via central power grids and meets its need for energy with wood, charcoal and agricultural waste materials. In 2011, about 400 million people in India had no access to electricity and approximately 836 million people (72% of the overall population) used traditional biomass as cooking fuel.

While economic growth has made India the world's third-largest CO<sub>2</sub> emitter, there are millions of people in India who live in poverty and are highly vulnerable to the effects of climate change. India is therefore facing three main challenges:

- Providing clean energy to the poor population
- Satisfying the growing energy hunger of the middle class and industry
- Curbing its contribution to global warming

India's energy sector relies to a large extent on fossil energy sources. In 2015, nearly 60% of the Indian power plants were coal-fired power plants. Renewable sources of energy con-



**Human Development Index**  
Ranked 131 out of 188

**Area**  
Around 3,287,000 km<sup>2</sup>

**Population**  
1,311 million

tributed about 13% to the energy mix. Since India's local coal has a relatively low heating value, roughly half of the coal used in the country is imported from other countries. Two thirds of this coal is used to produce electricity and most of the remaining amount is used for industrial processes.

## Fossil Energy Sources, Mega Dams, Nuclear Power

The business with fossil energy sources is firmly in the hands of government corporations like Coal India Limited (CIL), which produces 80% of Indian coal. Private companies are allowed to mine coal once they have purchased a licence for their own use, as is the case for individual private electricity producers, steel and cement companies.

Local oil reserves are only able to meet a fraction of the current demand, making India the world's fourth-largest importer of oil. The exports of oil products increased along with the heavy expansion of refining capacities.

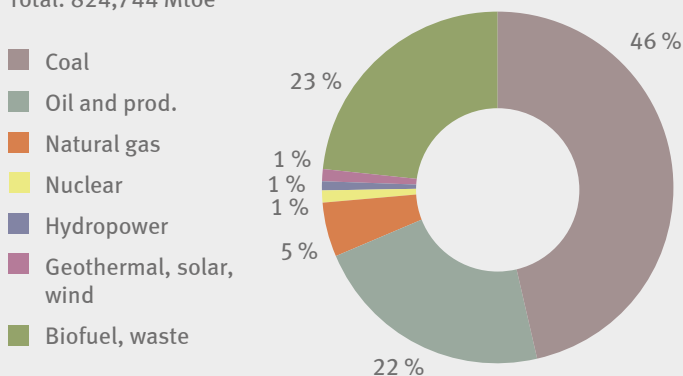
However, in the opinion of Indian civil society experts, not only coal and oil are problematic, but also the large number of mega dams. Dam projects repeatedly result in large-scale displacement, the destruction of forests and rivers, and have a negative climate balance in tropical regions in particular. India ranks fourth in the worldwide comparison of hydropower users, with 5,202 large dams throughout the country. Roughly 16% of the electricity in India is generated by large dams. However, the hydropower plants are falling short of expectations and are failing to deliver the anticipated amount of electricity, as an analysis from the South Asia Network on Dams, Rivers and People (SANDRP)<sup>1</sup> shows.

Nuclear power, whose share in the energy mix is still relatively negligible today, is slated to grow significantly in the coming decades according to the government's

<sup>1</sup> See SANDRP 2015: Diminishing Returns from Large Hydropower projects in India.

India: Total Primary Energy Supply by Sectors and Sources of Energy

Total: 824,744 Mtoe



Source: International Energy Agency: Statistics 2014





India's energy sector is largely based on fossil energy sources.

plans. India wants to produce a quarter of its electricity with nuclear power by 2050.

### Wind Energy, Solar and Biomass

Renewable energy is both an established component of the energy mix and also a promising element of all future scenarios. India currently already has the fifth-largest installed capacity of wind energy in the entire world (March 2016: 27 GW) and is planning on an ambitious expansion of solar capacities by participating in subsidy programmes such as the International Solar Alliance and a variety of promotional structures at the national and federal state levels.

However, the NGOs participating in the MISEREOR energy dialogue criticise that the expansion of the renewable sector still too closely follows the logic of the 'old' energy model. Support is mainly provided to large projects such as wind and solar parks that work in the context of a centralised network structure. These large projects often have problems similar to those of the fossil energy infrastructure: land and water conflicts and a lack of participation on the part of the population. India is still insufficiently geared towards true decentralisation, which could be used to better combat the huge inequality in the energy supply. Civil society experts primarily still see much need for improvement for the national and federal state support programmes: in some

cases, the support solutions' objectives and target groups overlap, and the goals and the actual implementation are often light years apart.

A quarter of the energy used today in India is generated from biomass, particularly by households and companies that rely on traditional biomass for cooking. The ensuing negative impact on the health of women and children, in particular, as well as the pressure on ecosystems, have not been addressed sufficiently so far. Various subsidy programmes are in place for cooking energy – such as for liquefied gas or kerosene – but they often do not reach the target group of particularly low-income households. One example involves subsidies for diesel that were meant to relieve small agricultural businesses but ended up mostly benefiting the freight sector instead.

Furthermore, biomass is used for electricity and fuel production and there are a few projects in which biomass is converted directly into gas for cooking. For households in particular, support programmes for using more efficient cookers have been in place since the 1980s. However, they have not resulted in a wide-ranging abandonment of traditional practices so far.

### More Efficiency Instead of More Coal

Since the Indian government considers the inadequate energy supply to be a key barrier to development, all kinds of





Small hydropower plants provide remote villages with electricity on a sustainable basis and offer new income opportunities.

Photo: Pohl/MISEREOR

scenarios from different institutions are in place. Conventional scenarios assume a considerable increase of coal and nuclear capacities for building additional production capacities. Accordingly, the current government is planning to more than double domestic coal production by 2020. The poor implementation of existing protective rights, for instance in coal mining, gives rise to grave concerns should the mining of local coal reserves be expanded as planned.

However, scenarios that include options for alternative sources of energy and climate protection goals to a greater extent show that India's energy needs could be 15% lower by 2050 than in 2005 with a simultaneous growth of the population, industrial production and transport volume. Achieving this would require strict energy efficiency and energy-saving policies, as well as the cross-sectoral use of electricity.

The transport sector today is responsible for around 14% of Indian greenhouse emissions. Currently, the sector relies mainly on oil, three quarters of which is imported. Transport development that explicitly addresses sustainability will have to focus more heavily on avoiding traffic, switching from individual to public transport and on improving opportunities for accessing means of transport<sup>2</sup>. The differences

between the urban and rural areas are discussed just as intensively in the MISEREOR energy dialogues as in the assumptions for an increasing use of agrofuels discussed in the scenarios. Experience has shown that in the agricultural sector, many 'waste products' are used in other value chains and therefore are not available for producing agrofuels.

### A Sustainable Energy System

The organisations participating in the MISEREOR energy dialogue have developed criteria and demands for a better and sustainable energy system in India in the context of four workshops.

A key component is an improved 'energy governance structure' based on transparency, participation of the population and reliability. The main focus has to be on a low-carbon path of development and on including the local actors. Intergenerational justice and sustainability have to be at the basis of every decision.

- Abandoning fossil energy: Considering the rising greenhouse emissions levels around the world, India will have

<sup>2</sup> <http://www.teriin.org/projects/green/pdf/National-Transport.pdf>

Solar lamps are changing life in Adivasi villages, making the evening both more productive and more social.

to give up its dependency on fossil energy sources. The risks to the climate, biological diversity, the population and particularly for indigenous groups and the water balance are too great.

- Renewable energy is more than wind and sun: The potential of biomass, marine energy, geothermal energy and the combination of different sources of energy must also be investigated for the future of Indian energy.
- Decentralisation: Decentralised systems have to be developed for using renewable energy sources that bring energy production and use closer together, instead of large structures. The power grid must support these requirements.
- Energy autarky: Urban and village administrations have to have sovereignty over energy planning in their areas. The objective must be to make municipal units (city, districts) energy self-sufficient. This advances innovations and planning can be adapted to the needs of the respective area.
- Energy justice: Vital needs must be covered first, with a preference for low-carbon technologies. Half of the electricity capacity should be reserved for productive purposes and educational institutions during the day while the remaining half should be reserved for households and small businesses. Micronetworks must be affordable for the rural population.
- Climate-friendly agriculture: India requires new climate-friendly technology, especially for agriculture. Solar power offers particularly good opportunities in this sector, since agricultural activities usually take place during the day.
- Saving energy and promoting efficiency: If energy efficiency is included and improved in planning models, this would most likely eliminate the need for most planned energy projects. Indian standards and labels for saving energy and energy efficiency must be developed and made known rather than always catering for ever-increasing power consumption.
- Coordination: Better coordination between the government levels is just as important as the coordination of planning efforts in the energy sector and climate policy.



Photo: Pohl/MISEROR

## ALTERNATIVES

### Mahila Housing Trust

Many people in India live in informal settlements. They often rent huts and houses that were constructed without a building permit. However, without any ownership rights, there usually is no access to electricity. People often pay a lot of money for 'illegal access' to a 'slum mafia' to even have electricity in the first place. Mahila Housing Trust organises people in informal settlements. The city of Bhopal (with a population of 2 million), for example, succeeded in simplifying and recognising the requirements for access to electricity so that people in informal settlements also have a right to municipal services. The organisation also trains women as energy consultants to disseminate knowledge about energy efficiency.

### LAYA

The organisation LAYA stands up for the rights of the Adivasi, the indigenous people of India. That includes the development of appropriate energy options and education on global warming.

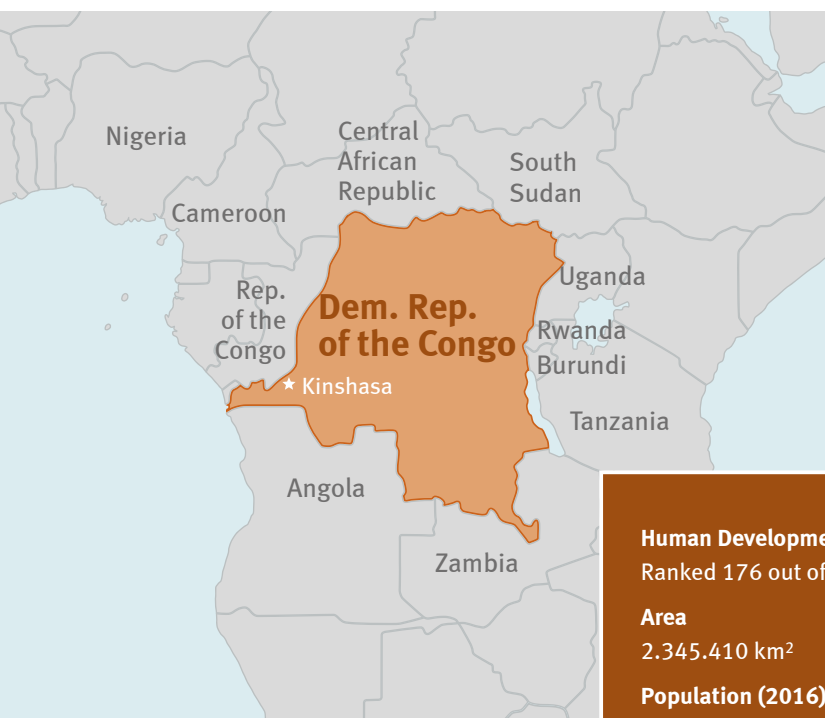
Solar and hydropower, but also the reduction of firewood, allow the use of energy while staying climate neutral.

Solar lamps provide light for housework or studying in the evening. The renewable energy programme is completed by energy saving options like improved ovens or technical education.

People pay for solar lamps and electricity and organise the operation and maintenance of the installations themselves.



# Democratic Republic of Congo: What Matters is Having Energy In the First Place!



**T**he energy situation in the Democratic Republic of Congo<sup>1</sup> is characterised by the yawning gap between its enormous potential and the acute lack of energy.

This vast country has diverse deposits of energy resources, some of which are extensive. The main source of energy is hydropower, which is already being used in many places. The INGA hydroelectric site, the country's largest hydropower plant, is located close to the mouth of the Congo River. The country has deposits of coal, oil and methane gas as well as uranium deposits that are still untapped or are exploited to only a limited extent. There is also great potential for solar and wind power as well as geothermal energy in many regions of the country. Theoretically, the DR Congo has electricity production capacities of about 2,600 MW. However, only 1,100 MW are actually functional (100,000 MW would potentially be possible).

Only 9% of the general population has access to the national power grid. In rural areas, the share is only 1%, however, compared to 35% in cities. The power supply via this power grid fluctuates very heavily, which manifests itself as voltage fluctuations and frequent long-lasting outages. In

principle, there is no reliable electricity supply at the household level. Companies and public institutions also prefer to rely on diesel generators. The country's large dams primarily provide power to mining and industrial companies. In addition, many companies have set up their own power supplies in the form of dams and power plants.

Central subjects of criticism in the energy dialogue in the DR Congo comprised the lack of government control, the failure to implement existing policy instruments and a lack of focus on the needs of the 'energy-poor' population. Mega dam projects supply power to industrial companies while the population lives without access to electricity from power lines.

## Energy Poverty and Biomass

Most of the DR Congo is covered by tropical rainforest, which has been subjected to severe pressure. According to the most recent energy information report drawn up by the National Energy Commission (CNE)<sup>2</sup>, the DR Congo generates 95% of its energy from biomass. The demand for biomass for cooking and heating amounts to 45 million cubic meters annually and is responsible for the razing of 400,000 hectares of forest

every year. In addition, charcoal is a key source of energy in the construction sector: a tremendous amount of charcoal is used for baking roof tiles. It is estimated that 600 hectares of woodland disappear every year for the Lubumbashi metropolitan area alone.

The massive deforestation of ever-larger areas in the surroundings of many cities results in dramatic price increases for wood fuels. Low-income households spend a large percentage of their income on wood or charcoal.

Experts assume that the demand for firewood and charcoal will continue to grow in proportion with the population growth in the coming decades. At the same time, no structural changes in the dietary habits and type and performance of the cooking appliances used are expected in the foreseeable future.

1 The short form of the country's name –DR Congo – will be used in the following.

2 Système d'Information Energie 2010. Energy information system that has been continuously developed since 2011 to generate data on energy production and energy balances at the international level.



Photo: Soteras Jall/MISEREOR

**Long power outages are the rule in the DR Congo. A mere 9% of the people there have a connection.**

## Planning and Future Scenarios

In view of the massive energy deficits, different political programmes are in place in the DR Congo to compensate for the lack of capacity, especially in the electricity sector. However, in many cases there still is not enough capacity required for implementation.

The DR Congo has developed a strategy in the framework of the international Sustainable Energy for All initiative<sup>3</sup> to improve access to electricity from renewable sources, in particular for people who currently lack access to electricity. The strategy paper for growth and poverty reduction<sup>4</sup> also assesses access to energy as a key requirement for development.

The Atlas of Renewable Energies<sup>5</sup> published by the Congolese Ministry for Water and Electricity Resources, the Dutch development agency SNV and UNEP could have a positive effect. The digital atlas permits public perusal of potential and already existing structures for all provinces and for all types of renewable energy. There is hope that pri-

vate initiatives for expanding the energy infrastructure will be supported with this comprehensive database, which is unique in Africa.

Unfortunately, to date no effective measures are in place for lowering the consumption of biomass energy and eliminating it from the country's energy balance by 2030. The threat posed by global warming exacerbates the problems arising from the sweeping and irreversible destruction of the environment. The destruction of valuable tropical forest for producing wood is detrimental to the local environment and also accelerates climate change.

## Results of the Energy Dialogue: Establishing Sustainable Provision of a Basic Energy Supply

The energy dialogues in the DR Congo respond to the extreme energy shortage and the blatant deficits of governmental actions by putting forward the demands established in that framework. Here too, the responsibility for fighting climate change serves as the framework of all efforts here. However, in contrast to other countries, establishing the provision of a basic energy supply is a key demand.

Due to the enormous theoretical potential of hydropower, the NGOs participating in the energy dialogue con-

3 Rapport national « énergie durable pour tous » à l'horizon 2030 : Sustainable Energy for All

4 Document de Stratégies pour la Croissance et la Réduction de la Pauvreté

5 Atlas des énergies renouvelables en RDC



sider the use of hydropower plants for generating electricity for export and thus acquiring foreign currency for funding necessary development tasks to be positive. Another point of contention, however, concerns the risk that such revenues will not achieve their intended purpose due to corruption and nepotism.

Renewable energy resources offer tremendous potential for the country since they can be used locally and in a scalable fashion. Self-help structures can be established, especially for renewable energy. Therefore, establishing decentralised, self-administered structures and ideally also deploying efficient technology and devices offer a huge opportunity which the government has also included in its strategies.

The following specific policy demands were developed in the energy dialogue for the DR Congo:

- Promote projects for renewable energy and energy efficiency
- Develop access to electricity in rural and peri-urban areas by financing network expansion, decentralised solutions with isolated networks or individual construction sets

- Secure electrical installations by strengthening and modernising existing transport networks as well as set up and support new national and regional networks while supporting new distribution companies
- Promote energy efficiency and cover the demand in the different industrial sectors
- Develop vocational training in the area of sustainable energy

For civil society, the energy issue is one of the current grand challenges for the development of the DR Congo and for humankind. This challenge can only be overcome by a joint approach of three parties: state actors, civil society actors, and financial institutions. While the thought process has started in the DR Congo and some initiatives from NGOs and private persons can be observed in the provinces, very few measures have been undertaken to bring the citizens on board. It will still take some time to develop alternative solutions for areas outside the electricity sector. This applies in particular to the transport sector, which in the DR Congo



**Cooking, heating and baking tiles: every year, 400,000 hectares of forest in the DR Congo are turned into charcoal and firewood.**

Photo: Soferas Jalli/MISEREOR



Renewable and decentralised solutions also work in weak states under difficult conditions.

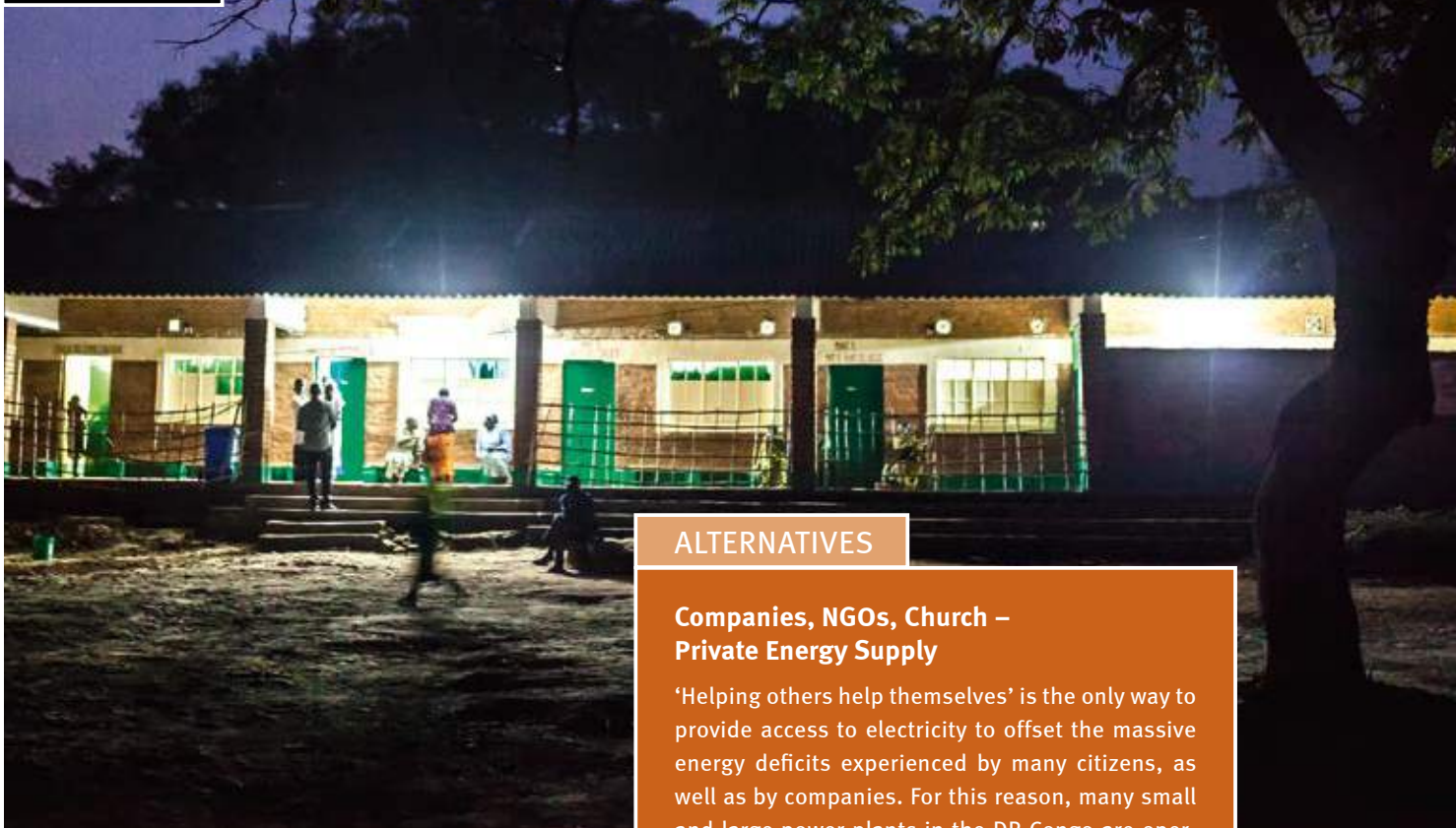


Photo: Soferas Jatti / MISEREOR

relies exclusively on oil. However, improving the extremely poor infrastructure is more urgent.

### Legal and Regulatory Framework

Finally, developing and implementing the legal and regulatory framework is important for the energy revolution. This would lay the foundation for measures for reducing emissions, for promoting energy efficiency and for supporting renewable energy.

However, it is unlikely that the current or subsequent governments of the DR Congo will be willing or able to offer the framework and to take on the responsibility for a sustainable energy supply for the majority of the population. Approaches for the private sector geared towards self-help will therefore be an important element for fighting energy poverty in the near future – albeit only on a small scale for the most part. Considering the size of the population and the ecological importance of the Congolese rainforest, solutions have to be developed at the international level that can support this fight. Any ‘energy revolution’ requires responsible government actions. Thus, the process for achieving a democratically legitimate government also should be seen as a contribution to fighting energy poverty in the DR Congo.

### ALTERNATIVES

#### Companies, NGOs, Church – Private Energy Supply

‘Helping others help themselves’ is the only way to provide access to electricity to offset the massive energy deficits experienced by many citizens, as well as by companies. For this reason, many small and large power plants in the DR Congo are operated by civil society. The Alliance pour les Virunga network has built three hydropower plants in the vicinity of the entire Virunga National Park which have a total of 27 MW installed capacity. The clear goal is to offer the people in the Virunga National Park an alternative to unsustainable forestry and allow for income-generating measures. Today, there are mills, rice factories, metal-processing companies, car repair shops, production sites for building materials, incubators and different service-providers. MISEREOR’s partner Tuungane has been supporting village cooperatives with small hydropower plants for about 30 years. Several NGOs, including MISEREOR’s partner Anti-Bwaki, support fermentation plants for household use in rural households, which are used for cooking and/or lighting. This affords an opportunity to reduce the dependency on firewood while avoiding greenhouse emissions arising from deforestation. Studies show that nearly 25% of households in North and South Kivu have enough livestock for running a biogas fermentation plant.



# Bolivia: Power Exports Despite Energy Poverty

**B**olivia is one of Latin America's poorest countries and one of the countries with the greatest inequality. Climate change has made its mark in the country for several years, especially in the Andes, where it manifested by phenomena such as the melting glaciers of the Andean highlands. The melting results in reduced drinking water availability in cities like La Paz and El Alto, changed rainfall patterns and more frequent extreme weather events in the long term. Climate change and the associated increasing weather insecurity have serious consequences on the lives of many smallholder families. These conditions make agriculture a very insecure endeavour, with more and more families losing their livelihoods, leading in turn to rural exodus. Young people seek work and opportunities in the cities, often leaving behind elderly and sick people, as well as women and children, in rural areas without adequate care.

The fact that climate change is already noticeable

#### Human Development Index

Ranked 118 out of 188

#### Area

1,098,581 km<sup>2</sup>

#### Population

10,887,882 million



in the cities, where the majority of the Bolivian population lives, has raised awareness about this issue in recent years, offering opportunities for the change process.

#### Resources, Use, Planning

Data from the energy sector also clearly demonstrate the disparity between rural and urban settlement areas. In Bolivia, the degree of access to electricity is 85% on average. Cities are considered to have nearly full access, while in rural areas a mere 61% of households have access to electricity. Three quarters of the electricity is consumed in the three cities of Santa Cruz (34.2%), La Paz (21.6%) and Cochabamba (19%).

The government plans to achieve 100% access to electricity throughout Bolivia and expand capacities from renewable sources of 183 megawatts (MW) by 2025.<sup>1</sup> This electricity is mainly generated from hydropower and natural gas.

Bolivia has large gas and oil deposits as well as great potential for using renewable energy. Since the 1990s, the political strategies have focused on increasing the share of people with access to electricity. At the same time, the capacities are being continuously expanded for export, with a focus on natural gas and electricity generated from hydropower. A total of 67% of the energy produced nationwide in 2014 was exported.

Most of the power consumed in Bolivia is used by transport and industrial processes. A mere 17% of the national power balance is represented by private households while 40% is consumed by the transport sector, and this share is increasing. The energy used in this sector is based entirely on oil products, primarily diesel. Many people in Bolivia continue to rely on traditional biomass for cooking, accounting for nearly 40% of the primary energy balance.

Bolivia's national development plan for 2006-2010 defines the electricity sector as a strategic sector and states the following objectives:

- Developing infrastructure that covers domestic needs and also allows for electricity exports
- Comprehensive coverage in rural and urban areas
- Energy sovereignty and independence

<sup>1</sup> See IRENA 2015: Renewable Energy Policy Brief: Bolivia



The three cities of Santa Cruz, La Paz (photo) and Cochabamba consume three quarters of the electricity in Bolivia.

- Government consolidation in the development of the electricity industry with sovereignty and social equality

### Key Challenges

The Bolivian energy study discusses the situation with regard to sustainability. Three dimensions play a role here: energy security (availability), social equality (access and affordability) and reducing negative environmental impacts (primarily with regard to climate change).

The authors ascertain that while in principle there is more than enough energy in Bolivia, it is not distributed equally and mostly benefits exports. Criticism of this development is expressed throughout Latin America with the buzzword 'neoextractivism'. Social equality is limited in the energy system and the impact on climate change in particular is assessed as very negative.

The civil society organisations in Bolivia participating in the energy dialogue mainly criticise that the energy policy plans focus too heavily on the large energy infrastructures for electricity exports. This applies in particular for mega dams, which use an energy source that is renewable in principle (hydropower), but bring about additional problems due to their size, including:

- Displacement of already vulnerable societal groups such as indigenous people
- Methane emissions due to rotting vegetation
- High costs for the economy.

Thus, for example, 10,000 MW electricity is scheduled to be exported to Brazil from two planned dams in the Amazon river basin: Chepete and El Bala. Bolivia currently has an installed capacity of 1,800 MW – these new dams would therefore constitute a nearly tenfold increase of the capacities. And the reservoirs would flood around 770 square kilometres of land, which would be five times the area of the La Paz metropolitan area. Civil society experts are concerned

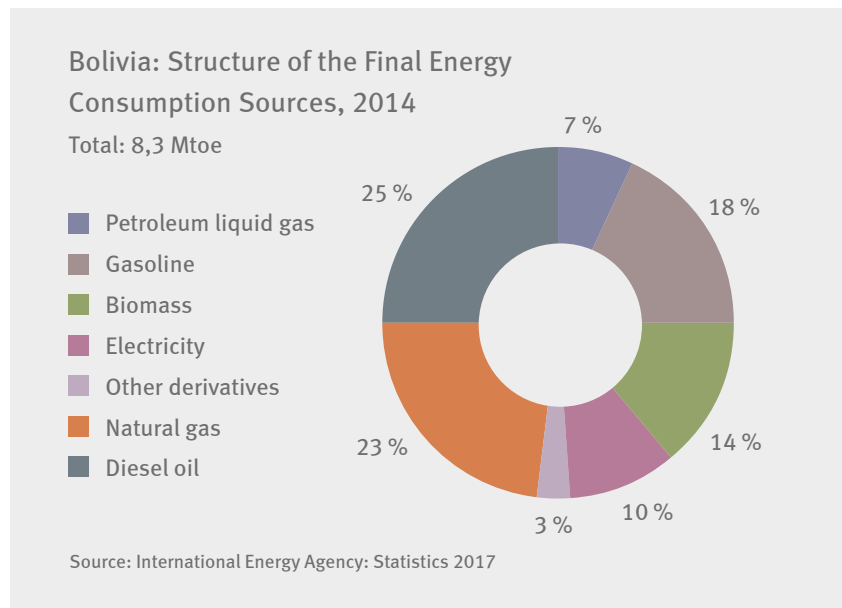






Photo: Soteras/MISERECOR

that flooding valuable rain forest areas would intensify the greenhouse effect and result in far-reaching destruction of biological diversity in the species-rich rainforest area. Furthermore, building the dams would displace over 5,000 indigenous people. And even the profitability of this project is questionable. According to recent calculations, the production costs for this electricity would be higher than Brazil currently pays for its hydroelectric power.

To build one of these mega dams, Bolivia would have to invest an amount that would double its foreign debt. The NGOs reject the government's plans to turn Bolivia into a power supplier for all of South America. In the NGOs' opinion, the priority should primarily be on the local production of electricity from renewable energy sources in decentralised structures.

### Everyday Energy Shortage

Access to electricity and fair energy consumption in particular are important issues for many people. In the framework of the energy dialogues, different target groups were asked for their opinion on a variety of aspects of the energy system. Among the respondents, 46% were particularly



Billboard advertising the Bolivian government's ambitious energy projects

Photo: Tuschen/MISERECOR



dissatisfied with the high energy costs in Bolivia and over a third criticised the fact that so many people lack access to electricity. Most people do not care where the electricity comes from. There is little public debate about the source of the energy or whether it is fossil or renewable; in fact, efficiency, energy intensity and sustainability of the energy appear to be irrelevant. What matters is having power at home.

The organisations participating in the energy dialogue state that the national energy system promotes exports more than the fair supply of electricity. This severely reduces Bolivia's energy sovereignty, especially regarding fuels in the transport sector. The organisations see very little political determination to change anything about this situation, especially on the part of policy-makers. However, abandoning fossil resources and relying more heavily on the potential from renewable energy is vital for the survival of valuable nature conservation areas and habitats of indigenous groups. A government document has announced the exploration of oil reserves in rain forests and indigenous territories.

To date, there still is a lack of a broad public discussion on this topic in Bolivia. For most of society, the level of information on national energy policy and its impact on nature and human rights is very low. Participation in this issue is also not encouraged on the part of the government. However, such participation is recognised both by national laws<sup>2</sup> and international legal regulations.<sup>3</sup>

### A Fair Energy System for 'buen vivir'

Three factors are of equal importance for Bolivian energy policy:

- Better coordination in the energy system between the government institutions and economic sectors
- Opportunities for civil society participation
- Reducing energy costs

The organisations participating in the energy dialogue call for alternatives to neoextractivism. The objective of energy policy should be to achieve independence from imports, particularly imports of fossil energy sources. A guiding principle of energy policy should especially be the principle of 'buen vivir', which is laid down in the Bolivian constitution, and people's relationships to Mother Earth. This makes it possible to reduce the vulnerability towards climate change and assure energy security.

<sup>2</sup> Law on the participation of the population and political constitution of the plurinational state of Bolivia

<sup>3</sup> Such as Convention 169 of the International Labour Organization (ILO) on the recognition of the prior, independent and informed consultation of the indigenous communities and peoples.

The network also takes action to preserve the valuable tropical rainforest areas in the lowlands.



Photo: Tuschien/MISEREOR

## ALTERNATIVES

### Climate Change and Justice Network

The Climate Change and Justice Network (GTCC) aims to raise awareness for climate change in Bolivia and to disseminate knowledge about options for adaptation and climate-friendly development. The broad coalition of about 50 organisations includes environmental organisations, church groups, urban youth organisations and rural development organisations. The participation in the MISEREOR energy dialogue also contributed to further education in the network itself: While in the past members of the dialogue used to associate the notion of energy with electricity, outlets and light bulbs, almost all the members are now convinced that the energy issue is not only highly relevant for climate protection but also plays a key role for the future development of the country. The members are now calling for a public debate on the government's plans to gradually develop the country into a net exporter of energy. GTCCJ will also get involved in the debate on mega dams. Such networks encourage a broader social dialogue, which is an important requirement for the participation of civil society in energy policy.





Photo: Poh/MISEREOR

Mega dams often have devastating effects on the environment and rob people of their livelihood.

## Hydropower Plants: Climate Change Mitigation Versus Human Rights?

Hydropower plants and mega dams in particular have been the target of massive criticism for decades owing to their devastating effects on people and the environment.

Rainforests along with their irreplaceable biodiversity often have to give way to expansive reservoirs, and hunters, gatherers, farmers or fisher folk, who are often members of indigenous communities, are displaced. In many cases the affected parties are not adequately consulted nor do they receive appropriate compensation for the loss of their **source of livelihood**.

This violates the rights to Free, Prior and Informed Consent (FPIC), adequate housing, an adequate standard of living as well as cultural rights.

It also impinges on the right of fisher folk to food. Together with the fishing grounds they also lose their source of food downstream. According to a scientific study, about one third of freshwater fish are endangered in the Amazon, Congo and Mekong river basins due to the 450 mega dams that are either under construction or in the planning stages. Additionally, it is not uncommon for state forces or private security forces to resort to violent means to put down protesters. According to Global Witness, in 2015 alone, 15 human rights activists and environmentalists were murdered who had actively resisted dam projects.

In Bolivia, opponents of dam projects are put under massive pressure. The situation around the Chepte and El Bala dam projects is a case in point. Most of the 10,000 MW output is intended for sale to Brazil. The planned flood plain lies in the Amazon and would be five times larger than the region of La Paz. Pablo Solón, the former Bolivian ambassador to the United Nations, reports facing public hostilities and politically motivated court proceedings.

He attributes this to his vociferous criticism of the government's energy planning.

Another example is the construction of the Santa Rita dam in Guatemala. According to the association Urgewald, 1,500 police officers attacked a peaceful blockade of 200 indigenous families protesting the construction of the dam. Their action claimed three lives and injured 50, and 30 protesters were arrested. In spite of the indigenous' protests, the state-run operating company Hidroeléctrica Santa Rita S.A. commenced construction work in 2012. Dinah Shelton, the Rapporteur on the **Rights of Indigenous People** to the Inter-American Commission on Human Rights, already objected to the violation of the right to FPIC in 2013. A total of seven individuals have been killed in the course of the conflict so far. The German Investment and Development Corporation (DEG) was also involved in financing the hydropower plant through its private equity fund, operating as a so-called financial intermediary. The project is also registered under the Clean Development Mechanism (CDM).

Generally, proponents justify their involvement in a hydropower plant by claiming that it constitutes climate-friendly technology. However, this assertion is highly contested. The organisation GegenStrömung points to scientific studies indicating that dams release lethal levels of **methane and nitrogen oxide**, particularly in tropical regions. According to these accounts, the Amazonian Tucuú dam's carbon footprint surpasses that of the São Paulo metropolis and the Amazonian Balbinia dam emits more carbon dioxide than coal-fired power plants generating comparable amounts of energy. Hydropower can achieve better results under other circumstances. Hence, hydropower cannot unreservedly be viewed as climate friendly.

# Human Rights in the Global Energy Sector and the Role of German Politics and Businesses

**T**he right to an adequate standard of living and the right to housing, which every state must guarantee, also entail access to energy. While the state itself does not have to provide the energy itself, it must ensure that energy-providers do not disadvantage anyone when it comes to providing access to energy.

## Human Rights Violations

At the same time, however, states are obliged to protect human rights when generating energy and when extracting raw materials for energy. In many cases this is not guaranteed, however. According to a study carried out at the University of Maastricht, nearly 30% of the 1,877 business-related human rights complaints registered worldwide between 2005 and 2014 could be attributed to the raw materials and energy sectors. The main reason for this is that the extraction of raw materials and the generation of energy are frequently undertaken as part of mega projects that are associated with profound destruction of the environment and the livelihoods of the people living near the projects.

Civic and political rights, for instance to information, self-determination, participa-

## Dirty Coal Business in South Africa

As a MISEREOR case study shows, at least 19 German companies were involved in the construction of the Medupi and Kusile coal-fired power plants in South Africa as suppliers or service-providers. The publicly owned KfW IPEX Bank also granted export loans for supplying boilers for the Medupi and Kusile coal-fired power plants in 2008 and 2009. The supplies of boilers were secured through export loan guarantees by the German government. In the surroundings of the Medupi coal-fired power station in the province of Limpopo, the power plant poses huge risks to both the people and the environment. Since for Medupi appropriate flue-gas desulphurisation units are not planned to be installed until five years after the respective boilers have been put into operation, the right to health in the area surrounding the plant is jeopardised. Moreover, the enormous water consumption threatens the rights to water and food. The new construction or the extension of the operating period of the coal-fired power plants will also increase the need for coal. Thus in the surroundings of the Medupi coal-fired power station, four new coal mines have been opened up and more such mines are now planned. Local residents and experts alike fear new land conflicts and a further contamination of ground water and river water owing to acid mine drainage, as can be observed on a

large scale in Mpumalanga province, with grave consequences for the rights to water and health of the population there.



Environmental destruction, health problems, corruption: in South Africa, resistance to mines and power plants is growing.





Colombia's coal regions are seeing increasing massive human rights violations.



Photos: Bianca Bauer; PAX NL (above)

tion, free speech and physical integrity, are also often violated in the context of these kinds of projects. The catastrophic impacts of the climate change exacerbate the problem. Sixty per cent of the greenhouse gases are produced by the energy sector, and coal firing is a major source.

### The Energy Sector is a Volatile Human Rights Issue

Such human rights violations are caused by the national and international actors in the global energy economy, in which German companies also play an important role, whether as importers of raw materials or as exporters of mining and power plant technologies, as service-providers and as financiers. A study by Germanwatch and MISEREOR documented over ten cases in which German companies such as Siemens, EnBW or Wintershall were accused of human rights violations. These were related to the import of hard coal and the construction of coal-fired power plants and mega dams, as well as wind turbines and geothermal power plants.

### German Lawmakers Called to Action

Protecting human rights is first and foremost an obligation of the states in which the relevant energy projects are implemented. In June 2017, the UN Committee on Economic, Social and Cultural Rights (CESCR) adopted General Comment 24, in which it again expressly and comprehensively underscored the obligation of states to exhaust the possibilities in their power to respect, protect and guarantee human rights even outside their own territory. This also applies to the German government, which actively supports German foreign business in the energy sector through promotion of foreign trade and investment, loans from the KfW IPEX Bank, as well as EU bilateral investment treaties.

Regrettably, the German government has still not yet made adequate legal provisions in order for human rights in this area to be effectively observed. While the government expressed the 'expectation' that German companies would implement their obligations to observe human rights in its National Action Plan on Business and Human Rights in late 2016, it rejects a legal obligation to do so. The only bright spot on the horizon is that fact that from 2018 on, it intends to have companies' obligation to observe human rights reviewed annually by an independent party and possibly also consider legal steps in 2020.



[https://www.misereor.org/fileadmin//user\\_upload/misereor\\_org/Publications/englisch/study\\_when-only-the-coal-counts-south-african-coal-sector.pdf](https://www.misereor.org/fileadmin//user_upload/misereor_org/Publications/englisch/study_when-only-the-coal-counts-south-african-coal-sector.pdf)





Photo: Soterias Jalli/MISEREOR

Renewable, decentralised and fair: Good Energy for All emits few greenhouse gases and contributes to overcoming poverty.

## Good Energy for All

**W**hile the energy dialogues were conducted in the participating countries independently of each other, some topics emerged across the board as the prerequisites for creating a global energy transition and a fair energy system. They refer to ‘guidelines’ that throughout the world may define a good energy system, which represents the link between poverty alleviation and climate protection and respects human rights. With the results of the energy dialogues, all of the participants are calling for broad societal dialogue about future energy systems at all levels.

### Specific Demands

- Good energy respects the planetary boundaries and refers to the incentive in the Paris Agreement to limit global warming to no more than 1.5°C. Thus, good energy generates as few greenhouse gases as possible.
- A good energy system requires good governance and good state conditions.
- Good energy contributes to overcoming poverty. It enables access to energy and energy-based services for all people.
- Good energy is generated, distributed and used efficiently. Good energy is generated in particular from renewable sources.

- In a good energy system, all stages of the production and supply chain and their use meet high standards with respect to human rights and sustainability.

### Together with our partners, MISEREOR calls for the following:

- The end of the use of fossil fuels worldwide, especially the use of coal and petroleum for generating energy. To this end, we need clear international frameworks that must be enshrined in national legislation and implemented by public authorities, the private sector and private persons. Each country’s energy strategies must push coal, oil and gas out of the energy mix. It also includes the discontinuation of (direct and indirect) subsidies and the termination of state support for coal infrastructures (especially from development funding).
- Renewable energy sources and decentralised structures: To fight energy poverty, provision with decentralised structures, fed by renewable energy sources, must be accorded priority. For both urban and rural regions, a whole range of adapted solutions are already in place. These solutions must enjoy better support so that more people can take advantage of them.
- Good governance: A good energy system requires good coordination between the governmental levels and close





**'Good energy' requires good technical solutions as well as a global culture of energy conservation.**

- Add cooking energy to the political agenda: Cooking energy is a key field of activity for energy justice, health and climate protection. Policies must regulate the use of biomass. At the same time, they must promote alternative, affordable and healthier methods.
- Energy-efficient urban planning and building: Since already today most of the global population lives in cities (55%), this plays a key role for climate protection. The main factor for controlling cities' energy requirements is land and area use that minimises the distance and number of journeys that need to be undertaken. The use of sustainable building materials rather than cement and steel and the construction of energy-efficient buildings also reduce urban greenhouse gases. Responsible land and resource policies therefore ensure that the conservation of ecosystems is accorded priority during urban planning and that all citizens, but especially vulnerable groups such as the urban poor, can lead safe and healthy lives in the cities.
  - Avoid traffic: In view of the huge amounts of energy consumed in all of the countries in the transport sector considered here (30 to 50% of the final energy), avoiding traffic must be identified immediately as a field of activity for energy policy. Mobility needs must be aligned with infrastructure planning as well as with climate and social policy. Avoiding transport and in turn, saving energy, must be accorded top priority.
- A culture of energy efficiency: In order to stop overuse and waste in a 'good energy' system, a shift in awareness among individuals and institutions is necessary. A culture of energy efficiency with the use of efficient technology must be worthwhile for everyone, rather than a poverty-related necessity.
- Transform jobs in the energy sector: In countries in which the fossil resource-based energy sector offers many people employment, shaping the transition is paramount. A good energy system offers job opportunities for various occupations with which people can secure their livelihood. This process must be jointly shaped by representatives of workers, the government, the energy sector, as well as of broader civil society. It includes the integration of energy topics in basic and further education and training.
- Promote participation: Participation does not come about automatically. Socially disadvantaged groups in particular must receive support for preparing to participate in energy-planning processes. A good energy system accompanies people and offers them further training to enable them to clarify their needs, safeguard their interests and take decisions. It includes research and development on an ongoing basis and ensures that it is possible to choose among different locally adapted technologies.

Photo: Pohl/MISEREOR

coordination of planning in the energy sector and climate policy. Good governance, in which civil society can also participate, is essential for counteracting corruption and poor planning in the energy sector.

- Make human rights a priority: States must oblige companies operating in the energy sector to observe human rights, and this obligation must be binding. Energy projects must not be allowed to destroy the livelihood of nearby communities. Resettlements must be undertaken only after the people affected have been informed early on, have received in-depth consultation and with their agreement and appropriate compensation.

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MISEREOR is the German Catholic Bishops' organisation for overseas development cooperation. We support the weak and disadvantaged members of society, regardless of their religion, ethnicity, skin colour or gender. MISEREOR's projects promote help towards self-help, to ensure that people are not dependent on long-term support. We therefore advise and support small-holders, are actively committed to human rights, train young people in occupations for the future and support small businesses with micro loans. For our project work, we rely completely on our local partners. These organisations, communities and self-help groups contribute their active involvement and enjoy the trust of the people concerned. Together with them, they shape the development on the ground and in these efforts, receive advice and financial support from MISEREOR: This ensures that the projects are adapted to the people's needs and lifestyles. MISEREOR fights not only poverty, hunger and injustice, but also their root causes. As an organisation that conducts political lobbying for disadvantaged people, MISEREOR undertakes active efforts to fight unfair trade conditions on the global markets, questions the economic policy in Europe and other regions of the world in terms of its consequences for poor people and exposes unjust societal structures in developing countries. Climate protection and human rights are fundamental criteria for MISEREOR's work.

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