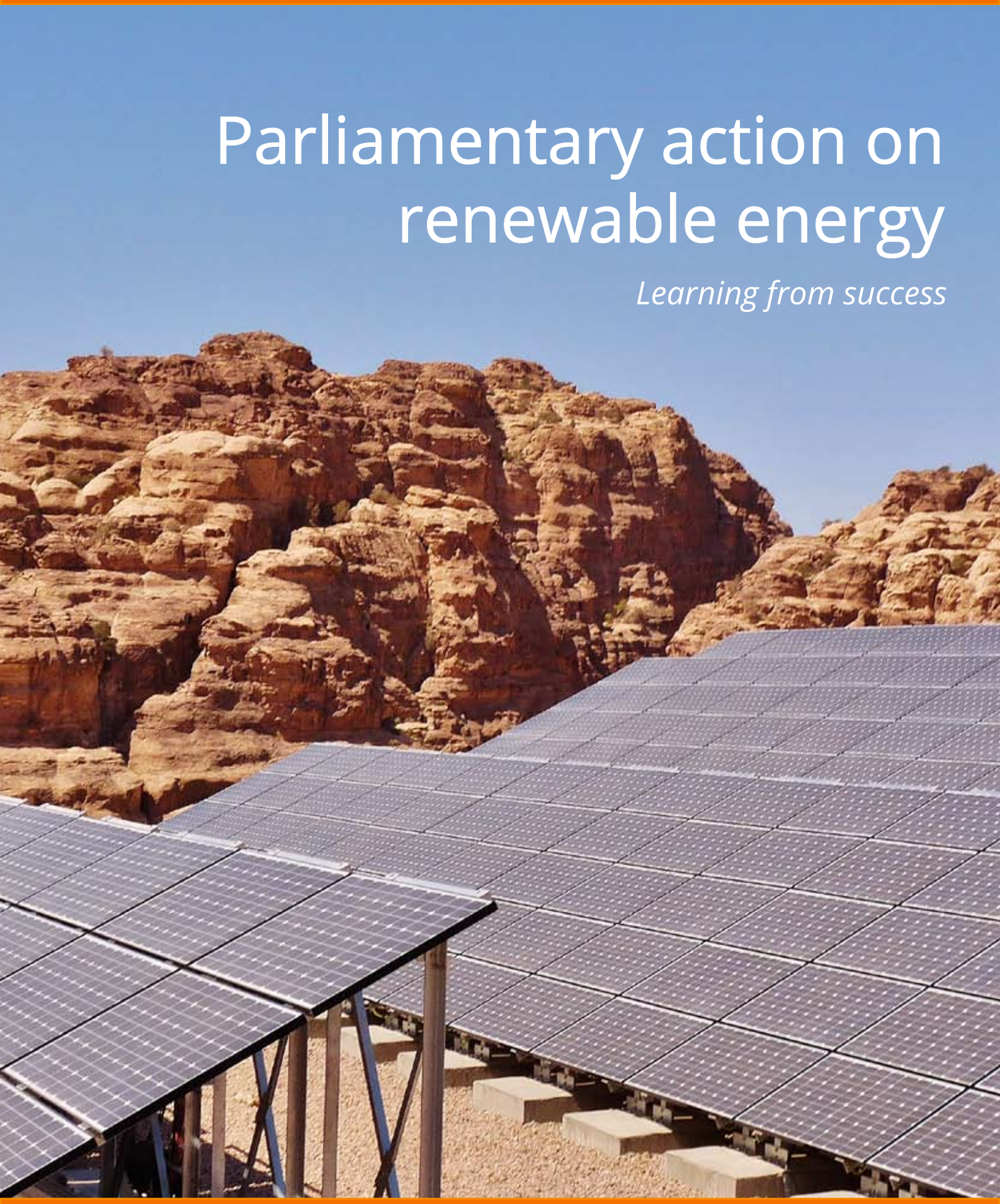
Climate Parliament

United Nations Development Programme

Parliamentary action on renewable energy

Learning from success



Dead Sea, Jordan

November 7th - 8th 2014

Climate Parliament

Legislators working worldwide to combat climate change

UNDP

Empowered lives
Resilient nations.

Contents

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Introduction

Dear Colleagues,

The desert nations of the Middle East and North Africa (MENA) region have quite simply the richest solar energy resources in the world. Just to give an idea of the potential, an area of desert just 250 km by 250 km, covered with solar power stations, could produce all the electricity that Europe and the Arab region use today.

If fully developed, this solar resource, combined with the region's excellent wind energy potential, could create large numbers of jobs, generate export revenue, and drive development. It could meet the energy needs of the MENA nations at a reasonable cost, and could provide a significant part of Europe's energy as well.

Regional cooperation on renewable energy could also help to prevent global climate change, which threatens the whole Mediterranean basin with drought and desertification. The Europe-Mediterranean region could show other regions of the world that it is possible for nations to share their best renewable energy resources to create a reliable supply of cheap, clean energy for everyone.

With this in mind, the latest in the ongoing series of joint parliamentary hearings organised by the Climate Parliament and the United Nations Development Programme took place near Amman, Jordan, in November 2014. Our meeting - the last in a series of events sponsored under the three-year Parliamentary Action on Renewable Energy programme - heard inspiring success stories of successful parliamentary campaigns on renewables and sustainability from around the world.

Although making the transition to renewable energy will not be easy, parliamentarians are in a unique position to take action. All that is required is understanding, personal commitment, and political will.

Thus, the work of the Climate Parliament and UNDP continues. If you would like any more information on our work, or are interested in attending any of our future events, please do consult our website – **http://www.climateparl.net** - or contact ben@climateparl.net.

Sir Graham Watson MEP

Honorary President
The Climate Parliament

List of participants

Members of Parliament

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Sri Lanka

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Tanzania

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Jitu Soni

Tunisia

Naima Baroudi
Dhamir Mannai

Uganda

Geoffrey Omara

Speakers

Saroj Dash	Concern Worldwide
Nicholas Dunlop	Climate Parliament
Deepak Gupta	Shakti Sustainable Energy Foundation
Dr Mostafa El-Aouazi	Climate Parliament
Hon. Mohamed Hamed	Jordanian Minister for Energy
Edward Kallon	UNDP Jordan
Julia Keutgen	UNDP
Kishan Khoday	UNDP Regional Centre Cairo
Dr Sanjay Kumar	Climate Parliament
Rudolf Rechsteiner	Swiss Development Cooperation
Secou Sarr	ENDA Energy
Karin Sosis	African Solar Designs
Atef Tarawneh	Speaker of the Jordanian House of Representatives

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James Corre	Hon. Louis Seck
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Kuba Gogolewski	Sharon Youssefi
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Agenda overview

This parliamentary forum is co-sponsored by the Climate Parliament and the United Nations Development Programme, and made possible thanks to the support of the European Commission and the Danish Ministry of Foreign Affairs. It will focus on learning from initiatives by members of the Climate Parliament's global network of legislators to change energy policies in their countries.

In Jordan, we will share experience between MPs who have been involved in this work and other interested MPs, consider how we can replicate successful initiatives in more countries, and discuss how we can accelerate the shift from fossil fuels to solar, wind and other renewable energy sources.

This is becoming increasingly urgent. Climate impacts caused mainly by oil, coal and gas are multiplying around the world as ice melts, the seas rise, and we witness an unprecedented series of flood disasters and violent storms. Meanwhile, more than 1 billion people still don't have a single lightbulb in their homes, even though they live in places that are rich in energy resources. With the price of solar and wind power falling fast, what we need now is a strong push from lawmakers to launch an irreversible worldwide energy transition.

Developing countries have a crucial role to play: already 80% of renewable energy investment is in less-industrialised countries. We will focus our discussions on budgets, taxes and national renewable energy targets, all matters where legislators are closely involved. We will also consider how other developing countries can work more closely with China, which is now the largest investor of all, and which is making ambitious proposals for international grid connections to promote renewables.

Programme

Friday 7th November

Opening Session

09:00 **Welcome and opening remarks**
Atef Tarawneh, Speaker of the Jordanian House of Representatives
Dr Mostafa El-Aouazi, Climate Parliament
Edward Kallon, UN Resident and Humanitarian Coordinator

09:30 **Keynote addresses**
Hon. Mohamed Hamed, Jordanian Minister for Energy
Dr. Sanjay Jaiswal MP, India

10:00 **Introductions**

10:40 **Climate impacts across the global South**: Saroj Dash, Senior Regional Technical Coordinator for Climate Change, Concern Worldwide

Session 1: Create dedicated funding streams

11:20 **Presentation**: Deepak Gupta, Senior Programme Manager, SHAKTI, Sustainable Energy Foundation

11:35 **Case Study:** Dr. Sanjay Jaiswal MP, on India's renewable energy budget and the Clean Energy Fund.

11:50 **Discussion** among participants, with additional brief progress reports from MPs on relevant parliamentary projects

Session 2: Set ambitious targets

14:15 **Discussion Panel:** Climate Parliament MPs share best practice and case studies of successful policy campaigns in their national parliaments. *Panel*: Nabila Benomar MP, Morocco; Kalikesh Singh Deo MP, India; Wafa Bani Mostafa MP, Jordan. *Chair*: Kishan Khoday, UNDP

15:00 Discussion and Q&A

Session 3: Build strong institutions

16:00 **Presentation**: Dr Rudolf Rechsteiner, Swiss Agency for Development Co operation, on legislating for renewable energy institutions and investment

16:15 **Case Study:** Nahim Razzaq MP, Bangladesh: the creation of the Sustain able and Renewable Energy Development Authority (SREDA).

16:30 Key points for policy and legislation: Discussion in three smaller groups based on region.

Saturday 8th November

Session 4: Design a market structure to attract investors

09:30 **Presentation**: Secou Sarr, ENDA energy: what financial mechanisms work best for rural electrification through renewable energies in Africa?

09:45 **Presentation**: Karin Sosis, African Solar Designs: presenting the Climate Parliament / ASD report on policy actions for renewables in Tanzania

10:00 Discussion among participants, including brief progress reports from MPs on relevant parliamentary projects and a review of the pros and cons of different approaches to market incentives.

Session 5: Share resources to ensure a reliable energy supply

11:20 China's Proposals for a Global Energy Internet to achieve 80% renewable energy by 2050: Dr Sanjay Kumar, Climate Parliament

11:35 Parliamentary action for a Solar Silk Road: Nicholas Dunlop, Secretary-General, Climate Parliament

11:50 Discussion

Session 6: Take action in Parliaments

14:15 Presentation: Julia Keutgen, UNDP: oversight, advocacy, and the Renewable Energy How-to Guide for Parliamentarians

14:30 Case Study: Ndeye Lucie Cisse MP, Senegal: ensuring implementation of existing renewable energy legislation; Dhamir Mannai, Tunisia, on the Tunisian Renewable Energy Law and new constitution

14:45 Discussion

Conclusions and next steps

15:20 Key policy and legislation conclusions: Discussion in three smaller groups based on region. What are the next steps necessary to keep the momentum going in your country?

16:20 Final plenary session: future action & next steps

17:00 Close of play

Day 1: Opening session

The opening session was chaired by **Ms Wafa Bani Mostafa MP**, a Jordanian legislator who welcomed the delegates to the region and outlined a list of recent Jordanian renewable energy projects. Arguing that, as an arid desert nation without significant reserves of oil or coal, Jordan is constrained in terms of its energy use – at least when thinking in traditional terms.

Renewables, however, are abundant in the country, and must be developed if the Hashemite Kingdom is to weather the impacts of climate change over the coming decades. As such, events such as this one are, Wafa argued, essential for sharing climate related concerns, developing best practice, and achieving the best outcomes for Jordan and the world.

Ms Wafa Bany Mostafa

Mr Edward Kallon

Next to speak was **Mr Edward Kallon**, UN Resident and Humanitarian Coordinator in Jordan. He welcomed the meeting as an excellent sign of different countries coming together in solidarity, and a clear indication of the kind of collective will required to battle climate change. With the most recent IPCC report concluding that climate change is severe, widespread and invasive on people and natural world, the Secretary General of the UN Mr Ban Ki Moon has concluded that sustainable energy must be a top priority for the organisation.

Mr Kallon argued that action on climate will be expensive, but that inaction will cost us more. MPs have all levers they need to get us moving on climate change – control over budgets and taxes, influence on new laws and legislation, and access to ministers and government officials. Legislators are in the driving seat, and can accomplish great things, if they have the political will. Mr Kallon suggested that the transition to a post-fossil fuel world will only

happen if parliamentarians use their political capital, perhaps taking inspiration from some of the parliamentary success stories of the PARE project. He urged the assembled delegates to share their experiences over the coming days and to work together to develop innovative new strategies for combating climate change.

The event was then formally opened by **Hon. Mohamed Hamed**, the Jordanian Minister for Energy, who delivered the keynote address of the event. He began by thanking the Climate Parliament group of MPs, whose remarkable efforts are driving the clean energy transition in the Kingdom. There can be no doubt, the minister insisted, that renewable energy is vital, it is mainstream, and it is here to stay – and the Jordanian Climate Parliament group are working to cement this fact at every level.

The country's ambitious new renewable energy law is largely thanks to their efforts. The minister argued that renewable energy allows regions to become almost entirely energy independent, ensuring access to energy for all and saving millions of lives lost to disease and pollution. Renewables also avoid the economy impact of fluctuating global oil prices, and allow skyrocketing demand to be met in ways impossible for traditional fossil-fuel imports.

Dr Sanjay Jaiswal MP

Hon Mohamed Hamed

The minister then outlined Jordan's impressive achievements in the field of renewables, and sketched the background of why they are so essential to meeting the country's development needs. As Jordan imports over 97% of its energy needs, this places a heavy burden on the economy, and with energy demand growing at 6% a year, this can only get worse. Already, almost 20% of the country's GDP goes on energy imports. The new renewable energy law, however, should go someway to addressing this crisis: with an ambitious target of 10% renewables by 2020, and a host of new policies and regulatory frameworks to encourage commercial development, the new law has already provided strong legislative support for several nascent energy projects. These include the 117MW El Tafila wind project; a further 230MW worth of proposals have been submitted in the last year alone.

Next on the agenda was India's **Dr Sanjay Jaiswal MP,** who delivered a speech written by Mr Rajiv Pratap Rudy MP, who had to cancel his attendance at the last minute. The presentation outlined the importance of renewable energy in India. With 1% of the country's national budget now allocated to renewables,

thanks to the hard work and dedication of the Climate Parliament group of MPs in the Indian Parliament, sustainability is now at the heart of the Indian state. Commitments to renewables are also enshrined in the manifestos for all the main political parties – again thanks to the Climate Parliament group – and a new target of 100,000MW of renewables, both on- and off-grid, has recently been announced.

But a wide-ranging set of reforms is still needed to cement these advances and make further progress possible, Dr Jaiswal argued. Many hundreds of thousands in India still lack access to energy, yet the country is already consuming more energy and natural resources than can be sustained even over the medium term. In a country so vulnerable to the impacts of climate change, affordable and reliable access to clean and sustainable energy sources are urgently required.

Dr Jaiswal concluded by stressing the basic human right to development and dignity; and emphasising the monumental nature of the challenge ahead. Indeed, he insisted, we are not working to install a few wind turbines: we are working to save and change humanity – a change not of degree but of substance and sustainability.

Following a brief round of introductions from the assembled delegates came the first formal presentation of the meeting: an overview of the latest climate science from **Mr Saroj Dash,** Senior Regional Technical Coordinator for Climate Change at Concern Worldwide. He began by stating simply that the climate has already changed; 2014 alone has broken all climate records and is on course to be the warmest year in history. These are not arcane scientific debates, but facts which are evident on the ground; millions of people around the world are already experiencing drought, floods, and storms – they know climate change is happening.

Mr Dash went on to outline the recently published 5th Assessment Report of the Intergovernmental Panel on Climate Change, which outlines a stronger degree of consensus on the underlying science than ever before. 97% of scientific articles on climate change in peer-reviewed journals agree that

Mr Saroj Dash

climate change is real, that unchecked it will have a catastrophic impact across the globe, and that urgent action must be taken to address it.

The livelihoods of the poor are threatened most, but even rich countries are at risk of damage, Mr Dash argued, with the very real possibility that mass starvation will return to Asia and Africa. Building climate resilience through smart agriculture can try to prevent this, especially with a gender-smart approach and youth engagement. But the best way to prevent such impacts is through aggressive mitigation, and some countries have already begun to make progressive commitments to action. The European Parliament, for example, has set a 40% decarbonisation target by 2030 – a relatively radical goal, given the scale of ambition elsewhere. Successful climate mitigation, however, will require similar ambition from every country on the planet.

The Green Climate Fund is a step in the right direction, although it still lacks clarity over the allocations, but a new global climate treaty is essential at the UNFCCC meeting in Paris 2015. Achieving such consensus, Mr Dash argued, will be a challenge, thanks to backsliding from Australia, Canada, New Zealand, Japan, and others. Mr Dash concluded with an inspirational quote from Ghandi, insisting that a better world is possible when we share a noble vision for resilience.

Session 1: Create dedicated funding streams

First to speak in Sesion 1 was **Mr Deepak Gupta**, Senior Programme Manager for Power at the SHAKTI Sustainable Energy Foundation. Mr Gupta began by sketching the rapid pace of global growth in installed renewable energy capacity in recent years. This exponential growth has largely been fuelled by reduction in cost; most market observers now predict that solar and wind energy will be cheaper than coal by 2020. However, these economies of scale may not be achieved unless we take action right away.

Mr Gupta then described how renewable energy presents unique challenges in financial terms. Unlike traditional fossil-fired energy facilities, where operating and fuel costs represent the bulk of the lifetime outlay of the project, renewable energy facilities have very low operating costs – as the price of fuel is essentially nil – but relatively high capital costs.

This creates a problem, however, as capital markets will treat renewable energy like any other investment, so new renewable projects have to compete with other investments in the market. Institutional investors tend to assume that the risks of renewable energy projects are higher, and thus demand higher returns on their investment. This means that policy makers have two options when trying to encourage renewable investment: legislation can either act to reduce the risk to investors, or to increase the returns made on that investment.

Mr Gupta then laid how the economics of India's target of 20% renewable energy by 2020, arguing that it will cost around $170 million US per annum for the first five years, followed by significant annual cost reductions. Although this might sound like a lot, it would actually save the country six times as much through reduced coal imports, not to mention reduced health costs. Mr Gupta concluded by urging legislators to de-risk renewable project development through long-term policy certainty; enhance the availability of finance through solid, consistent regulation; and implement mechanisms to reduce the cost of capital for renewable investors.

Returning to the podium was **Dr Sanjay Jaiswal MP**, who presented on success stories from the work of the Climate Parliament group in India. He opened by pointing out that India was the first country in the world to have its own renewable energy ministry – way back in the 1970's. However, it was never given adequate political support and remained ineffective. Yet today, Dr Jaiswal argued, India is returning to the right path, thanks to the efforts of the Climate Parliament MPs who have provided a shot in the arm to the India's government's climate ambitions.

He went on to outline the new renewables policy regime in India, including the country's ambitious Solar Mission, a new Electricity Act in 2003, new financing for the renewables sector, and a National Action Plan on Climate Change. Solar energy initiatives include a 100,000 MW solar target, 4 planned "ultra-mega" power plants, and a target for the cost of solar to reduce to Rs 5.40 per unit. Furthermore, the Ministry of New and Renewable Energy plans to set up 25 solar parks, which will allow solar developers to build panels in a designated area where the government will guarantee the grid connections.

In the wind sector, Dr Jaiswal was proud to report that India has the fifth largest wind power capacity in the world, and this impressive growth is set to continue when the national wind energy mission is launched in the near future. Thanks to a successful campaign from Climate Parliament MPs, the Generation-based incentive for wind power producers was reintroduced, helping provide new

Mr Deepak Gupta

incentives for developers. In another success for the Climate Parliament, the National Clean Energy Fund – a tax on coal imports – was increased from Rs 50 per tonne of coal imported to 100Rs, and its proceeds redirected towards environmental projects.

Dr Jaiswal also gave details of several other successful campaigns by the Climate Parliament MPs, including an increased budget for the Ministry of New and Renewable Energy; the reintroduction of Accelerated Depreciation and the Generation-Based Incentive for wind energy; making renewables a priority sector for loans from the Indian national bank; and ensuring that the MNRE budget takes up 1% of national spending – almost five times higher than in 2010.

Session 2: Set ambitious targets

After lunch, it was time for the first panel discussion of the conference, which featured **Ms Salima Faraji MP, Morocco; Mr Kalikesh Singh Deo MP, India; Ms Wafa Bani Mostafa MP**, Jordan; and was chaired by **Mr Kishan Khoday**, of UNDP's Climate Change and Energy Regional Bureau for Arab States. The chair began by asking the assembled panelists to describe how did the ambitious renewable energy targets of their respective countries came about, in parliamentary terms?

Ms Faraji began by insisting that our future as human beings depends on meeting the 2˚C target of the Kyoto Protocol – and by arguing that this can only be achieved through renewables research and development, energy efficiency, and investment. Of course, she suggested, legislators have a key role to play in public advocacy and education – as community leaders and representatives, they can encourage recycling and climate awareness.

Ms Faraji argued that each country must take into account its own natural resources, population and situation. In Morocco's case, there are no oil or gas resources, and only a little coal – so Moroccans have turned to renewables to this overcome energy deficit. With lots of sun in the scarcely-populated deserts, it makes sense to invest in solar – especially as solar energy requires less water than fossil-


Ms Salima Faraji MP

fired generation, important in such a dry country as Morocco.

Thanks to its ambitious action plan, Morocco is now a world leader in concentrated solar power development, Ms Faraji argued, with a target of 42% renewables by 2020 – and the possibility this will be expanded to a 60% target by 2030, by far the most ambitious in the world.

Ms Bani Mostafa of Jordan was next, and she began by congratulating the Jordanian Parliament for its cadre of excellent leaders on climate and energy, including the Climate Parliament group. In Jordan, the financial burden

from energy demand and imports of energy are heavy – and getting rapidly more intense. Since 2011, supplies from neighbouring countries have decreased, forcing Jordan to rely on diesel and heavy fuel, and driving up the costs of energy by a total of 1.3 billion Jordanian dinars.

The Jordanian Parliament has responded to this, Ms Bani Mostafa said, through several new initiatives on energy, including the creation of new committees on renewable energy. The primary outcomes include the ramping up of the country's renewables target to 20% by 2020; new incentives to encourage the private sector to invest in renewables; the recommendation that a separate ministry be created for renewables, to oversee implementation and employ qualified personnel – as training is lacking in the existing Energy Ministry; the exemption of all local renewable products from taxes; and new customs codes to allow the import of equipment.

New regulations such as these send a clear message to consumers and industry, Ms Bani Mostafa concluded. A strategy of positive engagement and collaborative partnerships will lead to further achievements – and she urged the collected legislators to share all possibilities and options for advancing the renewable agenda.

Ms Wafa Bany Mostafa MP

Mr Kalikesh Singh Deo MP

The final member of the panel was Mr Kalikesh Singh Deo MP, who recounted the Indian experience. He began by reminding the audience that, when we talk about percentage targets in India, it's important to remember that the sheer size of the country means that a small-sounding percentage target represents many, many gigawatts of energy. For example, the 2020 goal of 15% renewables means India needs to develop 130,000 MW of installed capacity of renewables – not including hydro! This is such a huge amount in real terms that,Mr Deo argued, it will bring an inevitable sea change in the way investors, politicians and communities see India in relation to climate change.

But, he insisted, long-term regulatory mechanisms are still required. The essential challenge in India is that the differential in cost between renewable options and fossil fuel options creates real political difficulties; for any developing nation, to reallocate resources from a "cheaper" option to a supposedly more expensive option will always be a tough sell.

Session 3: Building strong institutions

In the afternoon session, the delegates were treated to an incisive presentation on the practical economics of renewable energy from **Dr Rudy Rechsteiner** from the Swiss Development Cooperation. He began with an overview of Jordan's energy landscape, pointing out that 80% of revenue from exports goes directly to paying for energy imports, and the use of expensive and polluting heavy fuels and diesel is on the rise, for domestic and industrial sectors.

This increase is largely funded by generous subsidies from the government, which distort markets to such an extent that the Jordanian retail price of energy is barely half what it costs the national power company to produce – resulting in a $1.5 billion US annual deficit. Although some good initiatives from parliament have been taken, such as establishing regulations for net metering, subsidies are still acting as a big disincentive for developing renewable sources of energy.

Dr Rudy Rechsteiner

Dr Rechsteiner then explored the Swiss model of renewable energy generation, which includes lots of self production, where consumers generate their own power and sell the excess production back to the grid. In practical terms, this means that households can make money by selling renewable energy back to the grid, and provides a strong incentive for citizens to install household-scale renewables. This model could easily be duplicated in MENA countries, Dr Rechsteiner argued.

He then modelled how renewables investments remain very reliable investments over the very long-term, once their up-front costs have been paid off. Once they're built, hydro, solar and wind facilities will keep pumping out power cheaply for decades, with very low operational costs compared to fossil-fired alternatives.

Dr Rechsteiner then outlined the case against nuclear energy in Jordan, insisting that nuclear could never be an effective solution to the Hashemite Kingdom's energy needs thanks to its inflexibility, astronomical cost, security risk, huge water requirements, and difficulties in disposing nuclear waste.

Mr Nahim Razzaq MP

The last presentation of Friday was delivered by **Mr Nahim Razzaq MP,** the leader of the Climate Parliament's group in the Bangladeshi Parliament. He began by painting a picture of the climate vulnerabilities of Bangladesh, a country lying below sea-level caught between the sea and a major river basin, dependent on agriculture, with a very high population density and at severe risk of storm and flooding.

This provides a big incentive for Climate Parliament MPs pushing hard for climate-safe legislation. Mr Razzaq shared some of the group's major recent successes, including the campaign for the establishment of the Sustainable and Renewable Energy Development Agency, the push for increased funding for renewables, and the development of a roadmap for sustainable development, drafted by the Climate Parliament group of MPs in consultation with the energy ministry. Mr Razzaq lamented the challenges faced by the group, however, in trying to educate government, public, and different ministries all at once.

He extended his thanks to the staff of the Climate Parliament Secretariat, without whom much of this work would not have been possible. Through capacity building and the provision of important tools and data for MPs to use in meetings with Government and fellow MPs, the Climate Parliament has been central to the successes. SREDA is our most important success, Mr Razzaq argued, and outlined the series of meetings over 2013 and 2014 with the energy minister, officials, and key stakeholders which allowed the group to exert real sustained leverage, and resulted in new funding and government commitment to SREDA. For the first time in the history of Bangladesh, a national renewables fund was created, worth $52 million US – but the MPs don't plan to rest easy, and have already decided to work towards the doubling of this fund.

Session 4: Designing market structures

Day Two of the event kicked off with a fascinating presentation from **Mr Secou Sarr** of ENDA Energy, who spoke on barriers and opportunities for the financing of renewables. Mr Sarr began with an overview of constraints on capital, which include a lack of adequate policies, problems with regulatory enforcement, weak regulation, pressure from lobbying groups, weak entrepreneurial capacity, badly-designed business models, and the inadequacy of available funding. Very high interest rates also act as a break on investment – unsurprising when, as in Senegal, interest rates on business loans can top 20%. Finally, awareness of climate change, and the capacity to adequately assess risks for new technologies, is often low in the financial institutions of developing countries.

However, there are new opportunities in the field. Momentum is gathering behind renewable energy development, with both the post-2015 development agenda, the Green Climate Fund, and several major international energy and investment institutions all mainstreaming sustainable energy as a key market for developing countries. Most importantly, however, prices are still continuing to fall for renewable technologies, and are forecast to continue to do so – making the economic arguments for solar and wind power ever more persuasive.

Next, Mr Sarr explained the ENDA model for encouraging renewable energy entrepreneurship. With seed capital courtesy of UNEP, ENDA has deployed this model across Senegal, Zambia, Ghana, Tanzania, Kenya, and Uganda over the last several years, and has learnt several valuable lessons. The most important of these was the realisation that income among consumers was low, which depressed demand. Mr Sarr argued that it was somewhat pointless to assist entrepreneurs in bringing their products to market if no one is actually willing to buy them. This

Mr Secou Sarr

fed into the design of the second phase of the project, which included micro-financing schemes for rural clients to help them buy renewable energy products. In Senegal alone, the project reached over 3000 households, and helped leverage some $1million US worth of investment from $200,000 initial funding.

Rounding off Saturday's morning session was **Ms Karin Sosis** of African Solar Designs, who spoke on her organisation's research – commissioned by the Climate Parliament – on methods to stimulate investment in off-grid renewables for energy access, especially in rural areas, in Tanzania. She began by noting the importance of separating our terms when discussing such matters – "sustainable", "market-driven", and "commercial" mean different things and may not be entirely compatible. For example, the trend at the moment is towards getting private com-

Ms Karin Sossis

panies to run rural electrification schemes, but it is not always possible to boost energy access while making a profit.

When working in Tanzania, Ms Sosis argued, it's important to note that solar photovoltaic systems have a poor reputation, thanks to low consumer satisfaction historically with poor-quality solar products. In addition, the government's electrification priorities are heavily skewed towards grid extension; indeed, a 2013 survey found that Tanzania's off-grid population could best be energised through 50% grid expansion and 50% off-grid – but the Tanzanian government has put 90% of its electrification budget into grid extension.

The most reliable model of off-grid rural electrification currently available is the so-called ABC system, which Ms Sosis outlined for the benefit of the delegates. This consists of installing renewable energy generation around a suitable hub, which contains an Anchor, with a large, consistent demand for electricity, such as a big factory or a telecommunications base station; plenty of Businesses, such as local entrepreneurs in region of the anchor; and Communities – in other words, private consumers in nearby villages. This helps guarantee a certain level of income for the developer while maximising benefits for local citizens.

In Tanzania, the national regulatory body has formally acknowledged the role of green mini-grids, has provided standardised power-purchase agreements, and has already begun to proactively regulate new installations. Another positive development is the replacement of the old de facto uniform tariff with new cost-reflective pricing, allowing developers to sell their power to local communities without being undercut by the national utility.

Challenges remain, however. Chief amongst these are money, as revenue models are not easy to develop and banks lack technical capacity; and an institutional set up that remains very centralised. The national utility, TANESCO, is not always solvent and so isn't always capable of paying its feed in tariffs, which is a major disincentive for investors. In concluding, Ms Sosis argued that for off-grid electrification, Tanzania has established the rules of the road – in other words, the correct regulatory environment, but hasn't yet built the road itself, in terms of providing a political mandate and funding. This means rural electrification is not going anywhere. She recommended several actions to get things moving, including a commitment at high levels of government in the form of a national renewables strategy; a dedicated institutional home to oversee renewable deployment; ensuring TANESCO is solvent through increased funding and decentralisation; the depoliticisation of rural electrification; a new balance between positive and negative incentives, including VAT exemption; and government intervention to build demand.

Session 5: Sharing resources

Following a tea and coffee break, **Dr Sanjay Kumar** of the Climate Parliament brought out the big-picture thinking with his presentation on the "Global Energy Internet" - a proposal to achieve 80% renewable energy, worldwide, by 2050, using ultra-high-voltage direct current cables to link renewable generation centres across the world. Dr Kumar quickly sketched the severity of the threat of climate change, which in India in recent years has already cost the national economy close to $5 billion US in climate-related disasters.

Luckily, however, Dr Kumar argued that we already have the technical capacity to meet all our energy needs from renewable sources. The only slight problem is that renewables are dispersed, and intermittent – in other worlds, some regions have richer resources than others, and those resources fluctuate with the season and with the time of day. However, these issues can easily be overcome by linking the world's resources together into a single electricity grid, forming the backbone of a world energy internet.

A long term plan to build such a network would rely first on building political consensus, then interconnecting major cities and countries together with Arctic resources of wind and the huge solar potential of the world's deserts. It makes practical sense – after all, quipped Dr Kumar, there's lots of wind at the North Pole, and lots of sun in the deserts – so why not link them up? This might seem like a utopian pipe dream, but the plan is backed by the largest electricity utility in the world, the State Grid Corporation of China, and we already have grids connecting lots of countries. All we need is the political will to make it happen.

Dr Sanjay Kumar

Nicholas Dunlop of the Climate Parliament then elaborated on the themes of Dr Kumar's preceding presentation. For him, the fact that the SGCC – a major state owned enterprise – has already proposed connecting the renewable resources of the entire globe, is really quite extraordinary. Mr Dunlop insisted, however, that a worldwide global energy internet is not a substitute for distributed off grid renewable energy generation. Every kilowatt counts, and every community in the world needs to be harnessing as much of its renewable resources as possible. The energy internet is for the times when we can't harness as much locally as we need; as Mr Dunlop explained, it can ship power from the places where it is temporarily or seasonally abundant to those places where it is less so.

Mr Nicholas Dunlop

Although the fossil fuel lobby loves to say that renewable energy is intermittent and unreliable, the moment you bring in wider grids that link countries together you can guarantee an unlimited supply of reliable renewable energy. As Mr Dunlop pointed out, many of the countries represented at the conference have deserts in or near their borders; only a tiny fraction of the world's deserts, if covered with solar panels, could power the entire world with clean, reliable solar energy. And, with the price of solar power still plunging rapidly, it makes economic sense to start pushing for these developments today.

Hence the concept of the Solar Silk Road, generating solar power using solar photovoltaic and concentrating solar power, and transporting that power around the planet. When it's night in China, power could be exported eastwards from European wind and hydro and MENA solar, and visa versa. The chief engineer of the State Grid Corporation of China – the largest electricity utility in the world – has gone on record to say that there are no technical obstacles to achieving this. Political obstacles, however, remain.

Mr Dunlop closed with a stirring call to arms, and a stark warning of the dangers of inaction. Very few governments are thinking in terms of avoiding a global climate catastrophe. Our current pathway, according to basic climate science, will result in a +3˚C rise by 2050, representing a complete disaster for every country in the room – a return to the poverty, hunger, and chaos that we've spent generations trying to free ourselves from.

After lunch – which for many delegates included a quick dip in the Dead Sea – **Ms Julia Keutgen** of UNDP presented to the delegates the new guidebook to renewable energy for MPs, produced by the Climate Parliament and UNDP together, entitled Renewable Energy for Parliamentarians: A How-To Guide. Hot off the press, this detailed yet accessible document was launched by Helen Clark, head of the UN Development Programme, in New York earlier this year, and contains technical, financial, and legislative information designed to assist MPs in designing, campaigning for, and enacting new renewable energy laws and regulations.

Ms Keutgen then gave a succinct overview of the various parliamentary tools available to MPs to assist them in providing oversight on government projects. She argued that consulting with constituents itself could be a powerful tool, through gathering data and opinions from voters, civil society organisations, representatives of ministries, and private firms. Media involvement can help start a national conversation, placing pressure on government to respond. Parliamentary questions – even if they're not answered – can create pressure and generate interest; Ms Keutgen gave the example of how parliamentary questions raised in Morocco and India have helped hold the government's feet to the fire over climate.

Ms Julia Keutgen

Concluding session

The final session of the Jordan forum allowed the rapporteurs of the various regional discussion groups, which had been meeting throughout the event for focussed debates on locally relevant issues, to present back in plenary the findings of their groups.

From the Arab Region, Mr Abdullah Al-Khawaldeh MP of Jordan was first to present. He outlined how Jordan had agreed to buy production of renewable energy at a set price and signed contracts for 25 years from private sector entities, and how new regulations allowed developers to start small projects – under 5MW – without prior regulatory approval, which should help to speed up developments. In addition, the government has agreed to free all production components from VAT and import duties. Mr Al-Khawaldeh also shared his group's support for the Solar Silk Road concept – MPs from Jordan, Morocco and Tunisia were all enthusiastic for the possibilities of exporting local renewable energy in order to provide jobs, development and export revenue.

From the Sub-Saharan Africa group, Dr Sanjay Kumar agreed to act as rapporteur, and shared the important point that the visibility of the Climate Parliament network is not very high in the region. However, the MPs of the group were resolved to work together with other MPs in their national parliaments and their governments, expand the network to neighbouring countries and work in regional councils.

The African group emphasised the importance of credit lines in financial institutions reserved for renewables, and also called for a certain percentage of public funds to be reserved for sustainable energy projects. Providing strong parliamentary oversight is also a strong priority for the assembled members, while the establishment of targets is, itself, a key target that the parliamentarians will be working towards. Dr Kumar also reported that the general consensus of the group was in favour of the global energy internet.

For the South Asian group, Mr Vijinder Herath had agreed to act as rapporteur, and told the assembled delegates how the Indian, Sri Lankan and Bangladeshi MPs had recorded already signs of the impact of climate change on food security, livelihoods and migration amongst their constituents. Although the three countries are at different stages of market development, with India having the largest private sector investment and several tax incentives, all can push government resources towards encouraging new renewable energy capacity additions.

The MPs were agreed that strengthening renewable infrastructure is important, as is improving incentives for development – but both need to be undertaken as part of a joined-up approach in order to be maximally effective. Commercial financing institutions also need to be brought on board, and further efforts undertaken to push new legislation mandating long-term emissions reductions targets.

Finally, Mr Nicholas Dunlop of the Climate Parliament drew the meeting to a close by thanking the assembled delegates for their attendance, and expressing gratitude for the generous support of the donor and partner organisations who made the meeting possible.

About the PARE project

Chronic power shortage is a major problem in the South. At the same time, countries in Africa and Asia have rich potential in renewable energies like solar, wind, hydroelectric or biomass energy. If harnessed, these resources could provide the unlimited energy that is needed to lift the poor out of poverty and help reduce gender inequalities, without accelerating climate change.

The lack of national legal frameworks and policies as well as a lack of financial resources are major obstacles that have to be overcome if we want to promote and enable renewable energy for a significant portion of the world's population. Parliaments are key national institutions for the development, promotion and funding of renewable energy projects.

Members of Parliament must have the right tools to ensure access to clean energy for all the worlds' citizens. UNDP and the Climate Parliament propose to work together to build the capacity of parliamentarians to strengthen their advocacy and monitoring of the development of renewable energy sources, and to promote policy and regulatory reform to encourage investment in renewables.

UNDP is uniquely placed to build the capacity of developing country parliaments on energy issues, and to strengthen links between MPs and the UN system. UNDP currently supports one in three parliaments around the world. As the principal UN agency dealing with renewable energy issues (with clean energy as one of its main focus areas), UNDP is a key entry point to funding renewable energy and climate change projects through mechanisms such as the Global Environment Facility.

The Climate Parliament is the only global parliamentary network which has renewable energy as its primary focus, and it has already achieved impressive results in stimulating legislative and policy initiatives in Africa, India and the small island states.

In this collaboration, entitled Parliamentary Action on Renewable Energy, UNDP and the Climate Parliament are building regional networks of MPs and national cross-party parliamentary groups to promote renewable energy, new grids and other steps to ensure access to sustainable energy. At the same time, we will facilitate technical advice to the parliamentarians from across the UN system and from other organisations.

To learn more, visit the Climate Parliament website, at:

www.climateparl.net,

or the AGORA parliamentary portal, at:

agora-parl.org

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