



SMART VILLAGES
New thinking for off-grid communities worldwide

Central America, Caribbean and Mexico Media Dialogue: Dominican Republic Workshop



Workshop Report 29

November 2016

PUNTA CANA,
DOMINICAN REPUBLIC

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Renewable energy

Smart Villages

We aim to provide policymakers, donors, and development agencies concerned with rural energy access with new insights on the real barriers to energy access in villages in developing countries—technological, financial and political—and how they can be overcome. We have chosen to focus on remote off-grid villages, where local solutions (home- or institution-based systems and mini-grids) are both more realistic and cheaper than national grid extension. Our concern is to ensure that energy access results in development and the creation of “smart villages” in which many of the benefits of life in modern societies are available to rural communities.

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BACKGROUND

More than one billion people in the world still do not have electricity: over three billion cook on dirty, inefficient, and harmful stoves, and four million people die prematurely each year as a result. The UN's Sustainable Energy for All (SE4All) initiative aims to achieve universal access to modern energy services by 2030. Widespread recognition of the importance of this initiative led to energy access becoming one of the key themes running through the new Sustainable Development Goals (SDGs) adopted in September 2015. The Smart Villages Initiative aims to contribute to meeting the SDGs by providing an insightful “view from the front line” of the challenges of providing sustainable off-grid energy to remote villages as a catalyst for development and how they can be overcome.

Smart villages are proposed as a rural analogue to smart cities and could shift the balance of opportunities between urban and rural populations. While we may expect that their particular attributes will be context specific, common features will include access to good education and health-care, better opportunities to earn a living, greater participation in governance processes, and more resilient communities. All these development benefits are enabled by energy access, together with modern information and communication technologies.

The Smart Villages Initiative is evaluating the barriers to energy access in rural communities in developing countries and how those barriers can be overcome. Its focus is off-grid villages where local solutions (home- or institution-based systems and mini-grids) are cheaper than national grid extension. Its aim is to generate new insights

to inform the decisions and programmes of policy makers, donors and development agencies concerned with rural energy access for development.

As an integral part of that activity, the Smart Villages Initiative aims to raise public awareness of rural energy access issues, sustainable energy technologies, and entrepreneurial approaches to energy in the developing world. To help meet this goal, we seek to promote objective, informed, and balanced coverage of the issues, challenges, and opportunities through media dialogue events for both regional and international media. In this way we hope the main stakeholders—policy makers, funders, entrepreneurs, civil society, and the general public, including potential smart villagers themselves—can be made aware of the potential of off-grid rural energy provision. We also provide them with appropriate information to enable informed discussion of the issue. We are targeting high-profile international media outlets as well as the leading media organisations in countries where rural energy access is important.

By holding these regional media dialogue events, we hope to gain insights from local journalists as well as introducing or updating them with some of the latest technological innovations in the area, together with the regulatory, financial, entrepreneurial, and business challenges and opportunities that apply in their region. In this manner we hope to encourage a greater focus on this complex area that incorporates technology, business, politics, and rural development. Despite its importance in terms of the magnitude of the affected populations, rural energy access and its impact has not hitherto been a mainstream media priority.¹

DETAILS

This sixth workshop took place in November 2016 in Punta Cana, Dominican Republic. Following the success of inviting journalists to attend a full-scale workshop in Senegal, it was decided to repeat the exercise. As before, there were a number of reasons. Firstly, the general theme of the workshop on Rural Development, Resilience, and Recovery as renewable energy dividends seemed particularly newsworthy in view of the recent floods in Central America and hurricanes in the Caribbean. Secondly, logistics were greatly simplified and costs reduced compared to holding a separate media workshop, an important factor given the extremely high costs of internal flights in the region. Thirdly, and reflecting feedback from previous workshops, both presenters and participants confirmed that they had no objections and openly welcomed the opportunity to meet with journalists and explain their work, objectives, and obstacles.

The journalists thus attended for the full three days and then had a special wrap-up session. There is a separate report for the main workshop, which featured a mixture of briefings and case studies by local and international technical experts and practitioners, including local entrepreneurs. During the wrap-up session, the journalists were briefed on specialist topics of interest, such as individual technologies and energy access dividends, and available media resources. Again following on from Dakar, the majority of journalists also used this opportunity to present and discuss case studies from their own countries

on renewable energy penetration and its effects on off-grid communities.

The Dominican Republic was chosen as the venue because of support from our main workshop partner, the Dominican Republic's Academy of Science, and to enable participation from across the region. Simultaneous translation was provided in Spanish and English.

In our selection process we sought to identify editors and senior journalists from all the countries in the region. This meant prioritising those with a good knowledge of English. Spanish translation was provided, and Smart Villages staff were able to assist native French speakers with any issues arising. We selected print, broadcast, and new media journalists who showed an interest in energy, science, and technology, environmental, economics or rural development reporting. Since this was a new region for the Initiative, extensive research was needed to identify journalists, mainly through published articles on relevant topics, professional databases and networks, and direct contacts.

Interest was high, and we were able to secure participants from 10 countries—Antigua, Dominica, El Salvador, Honduras, Jamaica, Mexico, Nicaragua, Panama, St Kitts and the Dominican Republic. Other countries of interest where we were unfortunately unable to identify a suitable journalist included Haiti, Guatemala, Costa Rica and Guyana. The Smart Villages Initiative provided travel, accommodation, and expenses.

CONCLUSIONS

As in Senegal, the idea of inviting journalists to participate in the main workshop was a success. The setting and number of participants was optimal for allowing them to ask questions and set up interviews within the framework of the actual programme without the need for separate briefings. Both the expert speakers and the delegates were comfortable with the journalists' presence and openly welcomed the opportunity to share their experiences and views. From the start, the journalists were proactive in filing "live" stories. Several also followed up after the programme and a selection of their stories is attached in the appendices.

During the course of the workshop, Richard Hayhurst assessed the journalists' understanding of the issues under discussion and any shortcomings in their knowledge.

Again, as with previous workshops, these boiled down to three main issues. Firstly, since the majority were city-based with limited budgets and, in the case of Central American countries, faced with dangerous domestic travel situations, many were more aware of international issues such as the SDGs than the renewables situation in their own countries. This was not helped by the lack of information available from official sources and companies. However, this applied to nearly all areas, not just renewable energy. Indeed, it was a common observation (and source of regret) that they had found local case studies extremely hard to find and put into wider national contexts. On the other hand, many had risen to the challenge since they found the topic of renewable energy both fascinating and essential for the future of their countries. They thus welcomed the opportunity to meet key contacts from their own country at the meeting. The second concern was the widely varying levels of renewables penetration from country to country and resulting lack of regional strategies due, they felt, to endemic

corruption and political rivalries. Finally, there was also dissatisfaction with information from international bodies who are seen as concentrating on major news outlets and not doing enough to reach down to local media and build capacity.

On the basis of these shortcomings, Richard Hayhurst prepared a wrap-up session in which the journalists related their thoughts on the workshop and its relevance to the situation in their own country. Richard also gave a presentation on journalist resources and possible additional story angles around the international SDG context, the latest renewable energy technologies, energy access dividends, and the smart village concept.

In summary, this sixth and final workshop differed from the previous ones in that the journalists immediately grasped the idea and relevance of smart villages and were able to participate fully in the main workshop. One possible reason for this is that the sector has progressed so far in such a short space of time that renewable energy is now seen as a mainstream topic for a wide range of journalists—from environmental specialists to business and economics editors. The issue is more one of providing information, context, support, and story angles. In addition, the topic of resilience as a dividend of renewable energy access was high on the agenda. We had expected this from the Caribbean journalists but had not fully appreciated what a problem flooding causes in Central America.

Following this final event, the Smart Villages Initiative team leading the workshop concluded that it was correct to include an emphasis on media engagement in the project activity. Furthermore, in this case, the decision to invite journalists to a main workshop and adjust journalist-specific activities flexibly according to feedback was justified. The workshop lasted for three and a half days and to achieve this level of commitment

from busy journalists who had to get permission from editors to attend is testimony to the interest in the topic.

Attendance was satisfactory, although it was difficult to identify invitees and we are grateful for the assistance of Lucy Calderon and Kenneth Williams in this respect. The cost of internal flights was also extremely high. However, a good

balance (gender, experience, type of media) was achieved and the contribution, enthusiasm, and professionalism of the journalists were extremely gratifying. A final conclusion is that this kind of event could benefit from being repeated in a relatively short space of time, possibly in 2018, to follow up on the enthusiasm generated. The need to build local knowledge and awareness is clear.



Participants came from across the Caribbean and Central America for the workshop on sustainable energy.

SAMPLE CASE STUDIES

Fatima Romero, Honduras

Can you believe that 2.6 million Hondurans are still cooking with wood and having dinner by candlelight? Access to energy still comes at a high cost. The interesting thing about all this is how the situation of each department and municipality is different, despite suffering the same problem.

For example, in a small community called Miami, 15 kilometres from Tela (one of the most attractive tourist destinations in my country), its inhabitants pay L10.00 (US\$0.43) for charging their cell phone on the solar panel in a grocery store.

Most of the people on that beach are Garifuna, the largest ethnic group in Honduras, and some of them say they continue to live the same way as their ancestors did 200 years ago.

More than a year ago I travelled to the south of Honduras. It had been almost a decade since I last went to Choluteca and I had practically forgotten what it was like. I accompanied my sister to look at a project of solar panels that was being built there.

In the last five years, the municipalities bordering the Gulf of Fonseca have experienced a growth in key activities such as agribusiness, particularly shrimp, okra, and melons. In addition to this dynamism, the region is a benchmark in clean energy projects such as solar, wind, and biomass.

However, in spite of the expansion of renewable energy sources, the villagers in this rural area do not enjoy these benefits due to faults in the electric power transmission lines.

The building that saw is a spectacular work of 25 megawatts that during its construction created

about 1,200 direct jobs. Altogether, among all the solar parks of Choluteca there are 480 megawatts of clean energy.

This energy expansion is not transferred to the villages, however, and the World Bank figures confirm that only 44% of people in rural Honduras have access to energy. In response, they use solar panels for their basic use.

The distance from one house to another outside the urban area is one of the main reasons why access to such basic services as drinking water and energy is difficult.

After the visit to this renewable project, we decided to do some internal tourism and travelled to Cedeño, a beach in Marcovia, Choluteca. The black sand, the calm, and the sensation that time did not exist are some of the most vivid memories, but also the misery, the precariousness, and the lack of opportunities.

I am 23 years old and I have lived all my life in San Pedro Sula, where the social class gap is terrible, but nothing compares to rural poverty. It is probable that the distance of nine hours from my city to the south is the main reason why, despite being a reporter, I have not studied this subject as much as I would like.

Experts agree: this region has the most potential in terms of renewable energy projects, but it is urgent that its residents also enjoy this boom. It is necessary to expand the discussions on the southern region of Honduras, because although the government and private enterprise say that it is a great focus for the development of new industries, as long as citizens in the rural areas do not have access to energy there will be no development.

Edona Jnobaptiste, Dominica

Case study of renewable energy initiatives in the Commonwealth of Dominica

Background of electricity supply in the Commonwealth of Dominica

The Dominica Electricity Services Limited (DOMLEC) is the country's only electricity utility in the Commonwealth of Dominica. Nearly 65 per cent of the country's electricity production is based on fossil fuels.

The company has a non-exclusive generation licence and an exclusive licence to transmit, distribute and supply electricity within Dominica.

DOMLEC is the first Caribbean utility to install and implement a full Advanced Metering Infrastructure (AMI) which allows meters to be read from the company's office. The AMI allows customers who register to be able to monitor their consumption by means of the internet. The company also offers pre-paid metering to its customers. DOMLEC is one of the few utilities in the Caribbean that has, in conjunction with the Independent Regulatory Commission, published an interconnection policy which details the steps to be taken to interconnect renewable energy systems with the company's grid.

Generating Units

The company operates three run-of-the-river hydro plants on the Roseau River in the Roseau Valley. These plants are the Laudat plant, the Trafalgar plant, and the Padu plant, with installed capacities of 1.24 MW, 3.52 MW, and 1.8 MW respectively. These three plants are automated and are unmanned by operators. The plants are controlled from the System Control Centre located in Fond Cole. The company also operates two diesel stations, one in Fond Cole and the

other in Sugar Loaf, with installed capacities of 13.3 MW and 6.8 MW respectively.

Renewable Energy Initiatives

The Dominica Community High School is the first school to introduce solar energy on the island. The school is embracing a Go Green venture, in which it is implementing two environment-friendly projects:

Generating renewable energy by solar power

The provision of an alternate energy source of recycling waste material, for example grass and dry leaves.

In the Kalinago Territory where the island's indigenous people live, there is also a thrust towards **solar power**.

The plan is to provide solar power to 145 private homes connected to the national grid, fifteen private standalone houses and seven public buildings. There is already a solar farm in the Kalinago Territory with a 125-kilowatt powered plant to make this possible. The Government also sees this as an avenue to provide electricity access to residents who are without energy.

The project, which is almost complete, is being funded by the European Union through the Caribbean Community Climate Change Centre, and is based on evidence that the world's non-renewable resources are set to decline in the years to come.

With respect to solar energy, there is a private company on the island, Energy Management Solutions, which sets up solar PV systems. The company does this by either connecting to the national grid, using a "grid tie inverter", or a solar energy system independent of the grid which will use a "standalone inverter", along with the use of energy storage batteries.

How much power does it generate, and what are the savings?

The output of a solar PV system depends on its size. The most common systems are 1.5 kilowatt, which generates 5.5 kilowatt hours on an average daily basis, and 3 kilowatt, which generates 11 kilowatt hours on an average daily basis. A typical house consumes around 15 kilowatt hours per day, so a 1.5 to 3 kilowatt system may displace 35-70% of the average electricity bill. A solar module should last for 20 or 30 years, with inverters lasting up to 10 years.

Geothermal energy

One of the Government's more recent extensive renewable energy initiatives on the island is the development of geothermal energy. That undertaking started with an Exploration Drilling Project for geothermal resource in the Roseau Valley in 2011. Sixty million EC dollars have been invested in that project, of which 30.5 million dollars were spent in test drilling at Roseau Valley. The approval and passing of the Geothermal Resources Development Act of 2016 will guide the way for proper management of geothermal energy.

The Government has been in discussions with DOMLEC about how the distribution of geothermal energy would work. First, the Government plans to build a geothermal energy generation plant for the actual production of geothermal power.

The plan is for the Government to generate the energy and sell to DOMLEC for the company to distribute to consumers. Now there are two possible scenarios that could happen with a Government-DOMLEC arrangement, as Dave Stamp, DOMLEC's Commercial Manager, points out. Scenario one is if the Government, through its private partners, decides to build and operate a geothermal plant, DOMLEC as the owner of the grid system would buy geothermal energy from

the development partnership and distribute it to the public.

Assuming the price of geothermal energy is more competitive than the cost of putting diesel on the system, the geothermal energy—along with energy from the company's hydro station—should replace the energy from diesel, causing DOMLEC to operate fewer diesel plants. In this scenario DOMLEC would not have control over the selling price of geothermal energy by the Government. If the price is lower than diesel there should be a net reduction on electricity bills, according to Stamp.

The other scenario is if DOMLEC gets involved in the development and operation of the geothermal plant, whereby the company would work with the Government to see a reduction in electricity. DOMLEC is supports generation by renewable means. This would require DOMLEC to upgrade its transmission and distribution network.

Wind energy

In 2012, efforts were made to develop wind energy on the island with the Dominica Sustainable Energy Corporation (DSEC) embarking on the pilot phase of its sustainable electricity programme for Dominica. The group's engineers installed a one-kilowatt wind turbine in the southeast village of Delices at its facility.

The first phase of the project involved the production levels of wind energy. In the second phase DSEC expected to embark on the setting-up of multiple wind turbines in strategic locations all over Dominica to integrate within the existing Island-wide grid, with the objective of eliminating the need for fossil fuel power generation on the Island.

The project, however, did not get far and fell by the wayside.

MEDIA COVERAGE

Dominican Republic

<https://www.youtube.com/watch?v=Z3RHkv5X-hFM&t=202s> (Cue from 5:46 to 10:01)

https://www.youtube.com/watch?v=8R_FNSZn-P6Q (Cue from 15:06 to 18:04)

<https://www.youtube.com/watch?v=68rSjgU-JYEo> (Cue from 12:56 to 15:11)

Caribbean

<http://caribbeannewsservice.com/now/dominican-republic-takes-power-to-the-rural-people/>

<http://caribbeannewsservice.com/now/renewables-replace-traditional-flambeau-lamps-in-guyanas-hinterland/>

<http://caribbeannewsservice.com/now/wind-to-power-antiguas-main-hospital/>

<http://caribbeannewsservice.com/now/smart-villages-initiative-launched-in-the-caribbean/>

Central America

<http://www.laprensa.hn/economia/1019647-410/energ%C3%ADa-da-renovable-es-vital-para-desarrollo-del-%C3%A1rea-rural-en-centroam%C3%A9rica>

<http://www.laprensa.hn/economia/1021599-410/m%C3%A1s-de-20-millones-de-personas-en-causan-le%C3%B1a-para-cocinar>

http://www.laprensa.hn/honduras/1081172-410/fogones-mejorados-le%C3%B1a-familias_hondure%C3%B1as-pobreza

ANNEX 1: PROGRAMME

Regional Workshop: Sustainable energy sources for rural development and climatic resilience of off-grid communities in Central America, the Caribbean, and Mexico

Hotel Bávaro Palace Deluxe, Punta Cana, the Dominican Republic

November 16-18, 2016

Programme

16 November

Welcome addresses

Chair: Modesto Cruz

- 09:00 Welcome and workshop presentation
Bernie Jones, Smart Villages
Milciades Mejia, National Academy of Sciences of the Dominican Republic
- 09:10 Opening of the Workshop
Ministry of Energy and Mines, Vice Minister Ernesto Vilalta; Dominican Republic
- 09:20 The Smart Villages Initiative
John Holmes, Smart Villages
- 09:40 Regional overview of renewable energy for rural electrification
Alexandra Arias, Latin American Energy Organization (OLADE)
- 10:00 Guide to a sustainable energy future for the Americas: a book of IANAS
Claudio Estrada, Inter-American Network of Academies of Sciences (IANAS), Mexico
- 10:20 Coffee break

Renewable energy for energy security and rural development I

- 11:00 Central American Fund for Access to Energy and Poverty Reduction (FOCAEP)
José María Blanco, Fundación Red de Energía (BUN-CA), Costa Rica
- 11:20 Growing clean energy access in rural communities in SIDS: the role of data and analysis
Rebekah Shirley, the Energy and Resources Group, University of California, Berkeley
- 11:40 Potential renewable energy use in rural communities in Haiti
Marc Antoine Archer, President - Director General, Observatoire de l'énergie en Haiti
- 12:00 Overview of the development of renewable energies in the Dominican Republic
Julian Despradel, Focal Point Energy IANAS-ACRD, Dominican Republic

12:20 The legal framework of renewable energies in the Dominican Republic
Blas Minaya, Blas Minaya & Associates, Dominican Republic

12:40 Community projects implemented by the National Energy Commission
Yderlisa Castillo, National Energy Commission (CNE), Dominican Republic

13:00 Lunch

Renewable energy sources for risk management and natural disasters

Chair: Claudio Estrada

14:00 Conclusions of the Smart Villages workshop in Singapore
Bernie Jones, Smart Villages

14:20 Rural electrification characteristics and resilience to climate change and risk mitigation in Central America and the Caribbean
Marco Antonio Rodriguez, World Bank

14.40 Disaster risk management and renewable energy
Dennis Funes, United Nations Development Programme (UNDP)

15.00 Coffee break

15:30 Discussion session I

17.00 End of Day

19:30 Welcome cocktails, *La Palapa*

17 November

Renewable energy for energy security and rural development II

Chair: Julián Despradel

9:00 Lessons learned from the implementation of off-grid energy systems with sustainable energy sources
Hugo Arriaza, Rural Electrification and Resilience Consultant, Guatemala

9:20 Renewable energy and GEF small grants programme
Ita Jah Simmons, Department of Environment, Antigua and Barbuda

9:40 Renewable energy for energy security in St. Vincent and the Grenadines
Ellsworth Dacon, Director, St Vincent y the Grenadines

10:00 Renewable energy projects and climate change
Ana Sofía Ovalle, Fundación Sur Futuro, Dominican Republic

10:20 Coffee Break

Technological innovation

- 11:00 Research in the solar cells field
Arturo Fernandez Madrigal, Renewable Energy Institute, National Autonomous University of Mexico, Mexico
- 11:20 Model of sustainable energy matrix: wind, solar and biogas energy for rural schools with extended teaching hours
William Ernesto Camilo Reynoso, APEC University (UNAPEC), República Dominicana
- 11:40 Discussion session II
- 13:00 Lunch

Rural energy access and the private sector

- 14:00 Sustainable social inclusion through renewable energy projects
Geovany Pineda, Renewable Energy Producers S.A (PERSIAN), Honduras
- 14:20 Sustainable scenarios for Jamaica and the Caribbean, and the Caribbean Association of Sustainable Energy Professionals (CASEP)
Stephen Rhoden, Rho-Energy Consulting LLC, Jamaica
- 14:40 District Energy Project
Oscar San Martin, Electric Consortium of Punta Cana-Macao

Field trip to the power plant Electric Consortium Punta Cana-Macao

- 15:30 Depart hotel
- 17:00 Return to hotel and end of day

18 November**Health and energy access****Chair: Dennis Funes**

- 9:00 The importance of hospital information system and radiological information system (HIS/RIS) in rural areas
Modesto Cruz, National Academy of Sciences of the Dominican Republic
- 9:20 The potential use of renewable energy sources for rural clinics
Julian Despradel, Focal Point Energy IANAS-ACRD, Dominican Republic
- 9:40 Telemedicine
Herwin Speckter, Diagnostic Center for Advanced Medicine and Telemedicine (CEDIMAT), Dominican Republic
- 10:00 Coffee Break

Renewable energy for energy security and rural development III

- 10:40 Awareness of sustainable energy use in formal environmental education
José Amado Rodríguez, Ministry for Education, Dominican Republic
- 11:00 Decentralised energy systems for clean energy access
Isa Ferrall, the Energy and Resources Group, University of California, Berkeley, United States
- 11:20 Third generation photovoltaic systems
Wendy Guerra, World Bank, Bolivia
- 11:40 Discussion session III
- 13:00 Closing of the workshop

Journalist workshop

- 14:30 Introduction
- 14:45 Generating Stories from Workshop
- 15:30 Coffee
- 16:00 New Off-grid Technologies
- 16:45 Discussion
- 18:00 Close
- 19:30 Dinner

November 19

- 09:00 Reflections on workshop
- 09:45 Local Case Studies from Journalists
- 10:30 Productive Off-Grid Technologies
- 11:15 Coffee
- 11:30 Resources and Opportunities
- 12:30 Wrap up

ANNEX 2: LIST OF JOURNALISTS

Kenneth Williams is a graduate of Oakwood University in Huntsville, Ala., where he studied communication, political science, history and psychology. In 1987, he founded the Department of Information and Public Relations for the government of the British Virgin Islands and ran it for three years. He then founded the Department Of Human Resources for Road Town Wholesale, the second-largest private sector employer in the British Virgin Islands, and managed it for two years. In a visit to his native St. Kitts and Nevis in 1992, Williams realized that there was no independent source of news and information in the area, since the two newspapers were controlled by the two opposing political parties and the government controlled the radio and television station. In answer to a need he saw on the islands, Williams started the St. Kitts Nevis Observer in October 1994 and it remains the leading newspaper today. Williams' passions include good journalism and preservation of the environment.

Lucy Calderon is an award-winning journalist with degrees in science communication and journalism from the Universidad de San Carlos de Guatemala. Having started as journalist-photographer in 1998 in *Prensa Libre*, the strongest newspaper in the country, she is currently general editor of the Reader's Development Department. In addition, she freelances extensively on environmental and development issues. A board member of the World Science Journalists Foundation, she also founded the bi-monthly publication *Science and Technology in Guatemala*.

Henry Brenton was, up to mid-December 2016, Manager of News and Current Affairs at the Daily Observer in Antigua. He joined the company in February 2012 as a senior reporter. Brenton now heads Antigua & Barbuda's most popular online news source, antiguanewsroom.com. Prior to that, he worked at the Dominica Broadcasting Service from 2005 to 2009, covering issues of national, regional and international significance.

After a year at the station, his areas of focus narrowed to climate change and the environment. Noteworthy interviews on climate change include the President of Kenya, the chairman of the IPCC, world leaders, royalty and heads of various UN organisations, and the head of the IMF. He also produces the award-winning programme *The Big Issues*, which covers politics, finance, national security, and geopolitical concerns.

Desmond Brown is the lead environment correspondent in the Caribbean for the IPS News Agency. Prior to this, he co-produced and co-anchored the Caribbean Media Corporation's Radio News as well as the Caribbean Today Updates: Caribbean Newline and Primetime Caribbean on CMC's Global Television Channel, Carib-Vision. Desmond was educated in Jamaica and worked for several major radio and television stations in the Caribbean. He has been a news anchor at CCN TV6 in Trinidad and Tobago; the Grenada Broadcasting Network; Caribbean News Service and Good News FM in Grenada; and LOVE FM & LOVE Television in Jamaica. He was also a co-presenter of Morning Edition and the producer/anchor of the News at Ten and the News at Noon on 6, all news programmes of CCN TV6 in Trinidad.

Fátima Romero is a journalist for the newspaper La Prensa in Honduras. She writes about agriculture, finance and technology, and is passionate about environmental issues such as recycling and clean energy generation.

Emilia Zeballos is a journalist with El Signo, the leading newspaper in Panama. She has a strong interest in rural development and renewable energy.

Wendy Alvarez has been an economics journalist at La Prensa, Nicaragua's leading daily newspaper, since 2006, with a special interest in rural development and more recently renewable energy. She graduated from the University of Central America

with a degree in social communications and also has a diploma in journalism from the El Pais School of Journalism.

Byron Sosa is an economics journalist with the leading El Salvador newspaper La Prensa Grafica. He studied journalism at the University of El Salvador and has a strong interest in economics and renewable energy.

Edona Jnobaptiste is a news reporter, show producer and presenter for Dominica's main cable TV station, Marpin 24k. With over 10 years' experience, she has previously worked at the

Dominican Chronicle, Dominica News Online and, prior to her current position, as associate news editor at St Lucia News Online.

Mariana Belloso is Economics Editor of La Prensa Grafica, El Salvador's leading newspaper, a position she has held since 2007. Previously she was business editor at Diario El Mondo, country editor at Grupo Circe and journalist at Capitales. Mariana has a degree in journalism and English from the University of El Salvador and has also been awarded a Thomson Reuters Foundation scholarship.

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