

ECO COP



GREEN FILM SHOOTING: COP21 SPECIAL EDITION – IN COOPERATION WITH FILM4CLIMATE



 **CONNECT
4CLIMATE**

ecOPROD

**GREEN FILM
SHOOTING**

RAISING AWARENESS FOR CLIMATE CHANGE

During the UN Climate Change Conference (COP21), the colossal façade of the French National Library will be transformed into a projection screen for a live video feed of penguins that French filmmaker Luc Jacquet will transmit daily from Antarctica. "We're going to screen it at the Bibliothèque François Mitterrand in Paris to raise awareness on both penguins and the emergency situation in Antarctica", says

Jacquet in his ECO//COP interview. Raising awareness for climate change is one of the primary goals of *Film4Climate*, a program initiated by the World Bank's *Connect4Climate*. "We chose to focus on film because it has great powers of persuasion", stresses Lucia Grenna, Program Manager at *Connect4Climate*.

Since its launch at the beginning of 2015, *Film4Climate* has participated in many industry gatherings and film festivals, where it forged a broad range of partnerships, including one with the French network *Ecoprod*, founded in 2008 by Catherine Puiseux, CSR Director, TF1 Group and Olivier-René Veillon, CEO of the Ile-de-France Film Commission, whose mission is to green the Film and TV industry in France. *Ecoprod* provides Film and TV producers with various tools to reduce their carbon footprint. "About twenty productions test or use Carbon Clap each month, which results in about 100 to 150 evaluations per year", outlines Puiseux.

Olivier-René Veillon espouses the view that sustainable production must become standard operating procedure. "Now the carbon calculator exists. It is easy to use. It is free. Anybody can use it". Meanwhile, however, there are different carbon calculators in different countries. "I think it's inevitable that we will eventually have a universal, standard protocol", says Grenna.

This issue will be addressed at the *Audio-Visual Conference on Sustainable Productions* in Paris on November 25, which *Ecoprod* and *Film4Climate* are hosting before COP21 kicks off. The *#Day4Climate Action* will take place then, and environmentalist/filmmaker Slater Jewell-Kemker will screen a thirty-minute segment from her debut feature film, *An Inconvenient Youth*, which tracks the rise of the global youth climate movement. Jewell-Kemker began shooting the film when she was fifteen years old.

Another highlight is the *Sustania Awards*, which recognize sustainable production solutions throughout the world. Innovative projects from nine different countries were reviewed by an international Awards Committee chaired by Arnold Schwarzenegger. The Hollywood actor, politician, and environmentalist is convinced that the media has a powerful role to play in the fight against climate change. "Through films, television, and all media outlets, we must continue to deliver the message that solutions are out there and they are happening now", points out Schwarzenegger. "I believe films in particular can really inspire and make people want to take action".

YOU DON'T HAVE TO BE A SUPER HERO TO ACT SUSTAINABLY

The Film/Media Industry can make a difference. Sustainable initiatives are springing up all over the world.

The comic-book-inspired *Amazing Spider-Man 2*; the French animated 3D-adventure film *Minuscule*; the Belgian Oscar contender *The Broken Circle Breakdown*; the German comedy *Buddy*, as well as the Leonardo DiCaprio starrer *The Great Gatsby*, all have something in common: they were produced sustainably. The Film/Media Industry can make a difference by limiting its environmental impact – and with impressive results! The green methods used in the New York production of *Spider Man* resulted in diverting a total of 755 tons of material – equivalent to the size of 3.5 Statues of Liberty – to landfills.

According to a study performed by the European Broadcast Union (EBU), 2% of all worldwide carbon emissions result from information and communication technology. In France, the audio-visual sector is responsible for discharging approximately one million tons of carbon dioxide into the atmosphere every year. About a quarter of this is attributable to filmmaking. For industry experts Olivier-René Veillon and TF1 Director Catherine Puiseux, this was reason enough to create *Ecoprod*. Constituted as a network of film-funding agencies, broadcasters, and environmental agencies, the organization provides the Film/TV Industry with free tools to minimize the ecological footprint productions leave behind. In order to provide industry professionals with guidance for sustainable production methods, *Ecoprod* developed *Green Production Guidelines*, which was inspired by the Producers Guild of America's *Unified Best Practice Guide*.

The basic principles of a sustainable production include: conserving fuel and energy; avoiding toxins and pollutants; saving water;

and minimizing waste destined for landfills. The implementation of these green measures on a Film/TV production starts with the producer making a commitment, and it requires planning at the earliest stages of production. The green goals need to be defined in a sustainability plan, and these goals must be communicated to the various department heads.

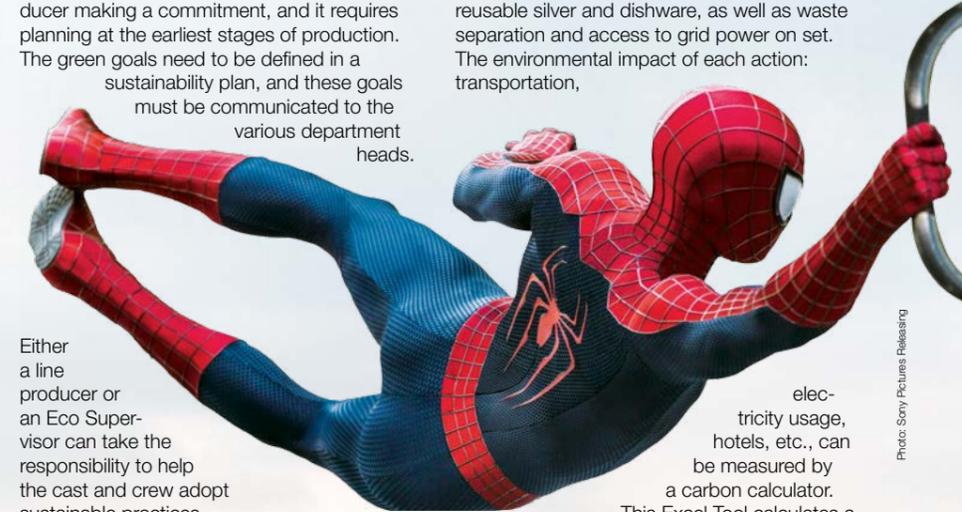
Either a line producer or an Eco Supervisor can take the responsibility to help the cast and crew adopt sustainable practices.

The *Best Practice Guide* devotes individual chapters to each department: Production Office; Transportation; Hotel & Catering; Transportation of Equipment; Studios & Set Design; Lighting; Equipment Rental; Wardrobe and Make-Up; and Post-Production.

The Theory of Everything: Each action has an environmental impact

Each production department has to consider specific requirements, which include electronic communications in the production office, and carpooling; the use of electric cars, LED lights in the studio, and rechargeable batteries in

the sound department; all the way up to and including sustainably-produced costumes, catering services that rely on local food, reusable silver and dishware, as well as waste separation and access to grid power on set. The environmental impact of each action: transportation,



electricity usage, hotels, etc., can be measured by a carbon calculator.

This Excel Tool calculates a figure based on both cost considerations and carbon emissions. The carbon calculator can define the scope of sustainability efforts, so it plays an important role in production decisions. The next step: car rental agencies, LED lighting and solar generator suppliers, and organic-food catering services need to be retained. Low-impact vendors and products made with green materials can be found in green handbooks or on on-line databases maintained by several organizations: PGA Green (US); *Ecoprod* (France); the e-Mission Project at Flanders Audiovisual Fund (Belgium); and the Hamburg Film Commission (Germany).



Belgian Oscar contender: *The Broken Circle Breakdown* by Felix van Groenigen



The Theory of Everything, produced by Working Title Films

PGA Green is largely supported by Hollywood studios (Disney, DreamWorks Studios, 20th Century Fox, NBC Universal, Paramount Pictures, Sony Pictures Entertainment, and Warner Bros.), all of which are adopting, promoting, and exploring smart business practices in their production offices, sound stages, and on location. Warner Bros. has been installing LED lighting for several years now, and it utilizes this innovative technology for set lighting on soundstages. Meanwhile, Disney ABC Studios designed an innovative set-recycling and rental program, which has succeeded in diverting waste from landfills while generating revenue by renting out set materials to other productions.

Over the last few years, about fifty feature films, including *Alice in Wonderland*, *Black Swan*, *Gone Girl*, *Gravity*, *The Hobbit*, and *X-Men: Days of Future Past*, have followed best practices for sustainable film production. *The Amazing Spider-Man 2*, the most eco-friendly tentpole movie in the history of

Sony Pictures, proved that pro-environmental measures translate into bottom-line savings. Green measures like recycling, composting, as well as selling off construction materials and set decorations, generated a savings of about US\$ 50,000. In addition, the production avoided using 193,000 disposable plastic water bottles. Twenty-five cases of plastic bottles for 100 crew members would have added up to more than US\$11,000 for sixty shooting days – and that doesn't even count the environmental damage plastic, which takes 700 years to decompose, causes. The alternative solution is renting water coolers and using compostable cups and gallon jugs, which paid off for *Amazing Spider Man 2*. It amounted to less than US\$ 5,500.

Different shades of green

In various parts of the world, Film/TV professionals are realizing that ecological choices are also attractive from an economic point

of view. In Belgium, the Flanders Audiovisual Fund (VAF) started the e-Mission Project in 2013. In addition to providing green tools and workshops, the film fund is now mandating that producers deliver a carbon footprint of their productions in order to receive the final installment of production funding, which can amount to anywhere between € 47.500 and € 65.000. Thanks to this funding condition, an increasing number of Belgian feature films are being produced green, among them the 2014 Foreign Language Oscar contender *The Broken Circle Breakdown*. In the Netherlands, a Sustainability Manager from the Film Fund passes on her green know-how to Film/TV crews; in Germany, the Filmförderung Hamburg Schleswig-Holstein awards sustainable productions with a Green Shooting Card. Since its introduction in 2011, more than fifty green certificates were handed out to feature films, documentaries, TV series, animated films, shorts, and student films. Thanks to its close collaboration with the Hamburg Media

School, a new generation of filmmakers is adopting best practices, some of whom will eventually wind up being Eco Supervisors.

The green virus also worked its way into German film studios. At Studio Hamburg, several TV series have already gone green. As a pioneer in restructuring workflows in a climate-friendly way, Studio Hamburg produced its first live TV show sustainably. At Bavaria Film Studios in Munich, renewable energy is being generated by hydroelectricity and geothermal teleheating, which makes it one of the first climate-neutral Film/TV studios in the world. From 2011 to 2014, the corporate carbon footprint was reduced by almost 97.5%. Prime-time shows in the studio complex enjoy the benefit of an ecological air-conditioning system. A central cooling system takes care of the computer servers, while also delivering cold running water as well as free cooling in the winter.

The PGA Green Guidelines are setting the standard

Best Practices are also being adopted in Italy. The Film Commissions in Sardegna, Trentino, and Torino-Piemonte are planning to set their standards for sustainable film production in conjunction with the transnational energy provider Edison, which launched the Edison Green Movie protocol. In Trentino, there are already eco-certificates for restaurants, caterers, and event planners.

In Scandinavia, Film Väst is collaborating with the Chalmers University of Technology in order to develop a computer modeling system as well as a methodology for calculating the environmental impact of film production. The calculation methods are based on life-cycle assessment and it will enable recommendations to be made to individual members of the cast and crew.

In Great Britain, Film/TV production companies are following A Plan-Do-Check-Act cycle that lies at the heart of BS 8909, which defines sustainable best practices. It provides a comprehensive standard for sustainability management in the UK film industry. BS 8909 was developed in 2011 when the BBC created a carbon calculator called Albert, which now has more than 800 users in the UK, among them over fifty TV production companies. The Pay-TV broadcaster Sky even demands a carbon footprint from productions they commission to outside contractors. According to the British Academy of Film and Television Arts (BAFTA), each hour of on-screen content

is responsible for an average of 5.8 tons of carbon dioxide (CO₂) emissions, which is equivalent to the emissions made by one UK citizen at work over the course of an entire year. The most significant carbon emissions are generated by travel (38%), followed by the production office (30%). The BS 8909 helped productions such as *Les Misérables*, *Anna Karenina*, and *The Theory of Everything* switch to more sustainable working methods.

Think global, act local

Meanwhile, green film production is taking place all around the world. In Australia, Green Shoot Pacific, a sustainability consultant, follows a management system approach outlined in the International Standard ISO 20121 – Sustainable Event Management Systems. Among the most prestigious productions they greened was *The Great Gatsby* with Leonardo DiCaprio, which was shot by Baz Luhrmann in Australia. Although most crew members were personally engaged in environmental initiatives in their private lives, these actions had not been formally carried over to the workplace. Green Shoot Pacific's departmental briefings and training seminars, and one-on-one communication ensured that many departments made significant changes in the way they thought about purchasing decisions, waste management, and environmental sustainability in general. The best practices for green production work globally, but when they are applied locally, it is essential to have a knowledge of production facilities with appropriate sustainability policies, as well as of local sustainable suppliers. Relying on local knowledge also means making a commitment to engage local experts for green production. Follow the motto: **Think global, act local!**

“The time for half-measures and climate denial is over. Unless we move quickly away from fossil fuels, we're going to destroy the air we breathe, the water we drink, the health of our children, grandchildren and future generations. If we're going to avoid the worst of the impacts, then we've just got to act boldly. And we must act immediately.”

Robert Redford
Actor, Director, Producer,
Environmentalist



Photo: Cooda/istock, CC BY-SA 4.0 <http://creativecommons.org/licenses/by-sa/4.0>

A NEW WAY OF THINKING

Olivier-René Veillon, Founding Member of *Ecoprod* and Chief Executive Officer of Ile-de-France Film Commission, on the need for a carbon-free production process, sustainable solutions and COP21.

What approach is *Ecoprod* taking to make the Film / TV industry more sustainable?

Ecoprod is imagining a new production process. The idea is not to minimize the carbon footprint of cinema and television productions, but to imagine a new carbon-free production process. First, we make the producers conscious of what they are doing by requiring them to calculate their carbon footprint. This resulted from work we did in developing several tools, including Carbon Clap, a carbon calculator. It's the only way to make producers conscious of their production's impact on the environment. They are able to calculate the carbon impact in the initial stages of production. Producers sometimes simply think that their productions don't have any impact on the environment, and this is a problem. Therefore, it's crucial that they measure the carbon footprint they make.

What are the biggest obstacles facing *Ecoprod*?

In Europe, and especially in France, film and television production is highly diversified, which presents difficulties. We have more than 2,000 producers in the Ile-de-France region alone. Ninety percent of French production, as well as a great deal of international production, takes place in Paris and the surrounding regions because of the attractiveness of the city and its surroundings. We have to convince them to be conscientious as well as to respect delicate heritage sites like Versailles, where they frequently want to shoot. We are promoting carbon-free production. That's the direction we're taking with cinema and audiovisual production. That's why we're involved as a Film Commission. Our concept is local. We're responsible for this region.



Olivier-René Veillon, Founding member of *Ecoprod* and CEO of Ile-de-France Film Commission

What are the essential steps taken in this process?

First, we've been making producers conscious of what they're doing. At the same time, we've been working with all the companies that are involved in the production process. We find carbon-free solutions.

We created the *Ecoprod Charter* for all companies involved in the film/television production process. Studios as well as service companies participate by acting sustainably. And to take it a step further, we offer innovative, absolutely carbon-free solutions. We've been working closely with the CNC (Centre national du cinéma), which has a fund dedicated to technical innovation in the production process. We are going to present innovations that offer carbon-free solutions at our Conference in Paris on November 25.

How many productions have already used the carbon calculator? And how many companies?

About 200 companies have used or are using the carbon calculator. We enjoy the complete cooperation of the associations representing set decorators and line producers. Most of the technicians involved are participating actively. But we're facing some reluctance from producers, who are focused on the economics of their productions. They haven't yet realized that new production methods may be more economical, if the producer, of course, accepts another vision of production.

What has already been accomplished?

We have substantially reduced the number of generators used on shoots at major locations in Paris. We partnered with the French energy provider ERDF and the City of Paris to equip major locations where productions frequently shoot with power from the electrical grid. In Paris, we have about 80 locations that are used on a permanent basis: the Eiffel Tower; the Arc de Triomphe; and the banks of the Seine. We have equipped these locations with electric power so crews don't have to use generators, which have a strong negative impact on the environment.

Besides energy, transportation is a huge carbon generator. How do you deal with this issue?

Old trucks, which usually have diesel-powered engines, leave a heavy carbon footprint. So, we are offering electricity-based alternatives to help companies find other solutions.

The CNC is doing a lot to support innovative approaches to give the companies the opportunity to outfit their fleets with electric trucks, which is absolutely necessary. TSF and Transpalux are the two major rental companies in the Ile-de-France region. They are both signatories to the *Ecoprod Charter*. They realized that they had a great opportunity to provide better service and to introduce a new way of thinking to future productions.

Is it still necessary to raise awareness about environmental issues?

Absolutely, and that's why we're going to introduce projects that have benefited from the support of the CNC and which offer operational solutions for production companies at our Audiovisual Conference on November 25. We have the tools. We have the financing.

Now, for the companies, it's simply a matter of strategy and administration. After the presentations on November 25, we're going to follow up with the Ile-de-France Location Expo in Paris in February. *Ecoprod* is going to network all the companies that are signatories of *Ecoprod Charter* with the professionals who are promoting their solutions for film/television production. Everybody who's anybody in media production is going to be there.

What benefits does sustainable production offer?

The key benefit is the reduction of a production's carbon footprint. More and more producers, especially American studios, are going to be asking for a production's carbon footprint, and they're going to calculate it.

Meanwhile, we're lobbying all the cinema financing programs in France in order to make it a requirement that producers submit not only a production budget but a carbon print of the production, as well, in the application process for subsidies. It has to become standard procedure for producers. This is not the case

now because the first step was to give them the tools to be able to address these questions. Now, the carbon calculator exists. It is easy to use. It is free. Anybody can use it. We need to get all our partners on board, the CNC as well as the regions, but especially the Ile-de-France Region, which will be headed by a new president at the beginning of next year. Film subsidies must require a sustainable approach. Now we're ready to take the next step because we have the tools, we have the solutions, and we have the companies that are able to deliver the services. So, there won't be any excuses.

This isn't going to cause the producer any trouble, and it's not going to create any difficulties because calculating the carbon footprint of a production is easy. And it has to be a criterion to evaluate the producer as well as the production. A good producer has to deliver accurate information on the production's carbon impact and, of course, reduce it.

Is it a question of political will to go green or is it a question of practical implementation?

I think it's both. We need to have the practical solutions in order to provide the political will the wherewithal to do everything that's possible. Of course, the political will is always important, especially in our business, which in France is heavily regulated. We need a strong political will. I think this is the right time, since France hosting COP21.

What kind of impact does COP21 have?

It's a fantastic opportunity to accelerate the process. It's a great honor as well as a great responsibility to host the event. Then this region is going to have to show important sectors like film and television what's possible to do today, and contrast it with what they are actually doing today. It's important to look at the question in this context.

SUPPORT FOR SUSTAINABLE SOLUTIONS

The French film funding institution **Centre National du Cinéma (CNC)** launched a new initiative in 2014 to support sustainable solutions which is gradually gaining recognition in the French Film/TV industry. The green grants are part of CNC's program, which has a yearly budget of €6m to support TV and feature-film service providers. "In 2014, we supported one project with a €24,000 grant. This year, we've already greenlighted three projects with grants totaling €85,000", reports Baptiste Heynemann, Head of Technique and Innovation at CNC. "Depending on the size of the company, we support anywhere from 40% to 60% of the cost of investing in environmen-



The Centre National du Cinéma supports sustainable investments

tal protection. In addition, the CNC pays up to 70% of the expenses incurred in commissioning environmental studies, including energy audits.

Among the companies investing in sustainable solutions is the French film equipment rental house and studio group TSF, where Woody Allen rented the equipment for films such as *Midnight in Paris* and *Magic in the Moonlight*. While the CNC supported TSF's investments in LED lights, most of the green grants were awarded for investments in Green IT.

The Paris-based animation studio Supamonks, which is moving to a larger facility and shifting its focus from advertising to TV production, wants to take a new approach to production that favors sustainability. Key to the transition is a render farm that consumes less electricity and gas. "The render farm is located in radiators, which are using the thermal discharge of the devices to heat the office", explains Pierre de Cabissole, Head of Production at Supamonks. "We're partnering with Qarnot, which developed this technology". The new Supamonk studio facilities will be equipped with two heaters comprised of 64 rendering nodes.

Qarnot's Q.rad innovative heating technology



Baptiste Heynemann, Head of Technique and Innovation at CNC



Datacare provides on-location data processing for productions



The Q.rad can be controlled from any connected smartphone



The animation studio Supamonks is named after its first short film

uses processing units as primary heat source to maximize computing energy efficiency while simultaneously providing free heat to buildings and homes. Qarnot Computing's Cloud service distributes HPC workloads efficiently to Q.rad's digital heater farm according to the host's needs for heat and HPC workload constraints. Qarnot sponsored the rendering of the animated film *Cosmos Laundromat*. The movie's 3-D renderings, performed on Qarnot's heaters, represented one year of free heating for about twenty households.

This smart green processing solution was developed as an alternative to energy-consuming data centers where more than a third of the electricity is used to cool processing units. "The energy impact of this solution, when compared to the current set-up with data centers and conventional heaters, results in a carbon footprint that is 75% smaller", emphasizes Paul Benoit, Founder & CEO of Qarnot Computing.

CNC also provided Green IT investment support to the Parisian post-production house MacGuff Line, which created the visual effects for *Il était une forêt* by Luc Jacquet, among others. Another signatory of the *Ecoprod Charter* is the audio-visual company Datacare, which developed a vehicle with a



The Q.rad multi-processor HPC server

completely autonomous platform dedicated to data processing for productions on location. Equipped with a solar panel and embedded batteries, the truck is powered by renewable energy. Thanks to its own internet connection, the mobile working station facilitates data exchange with post-production studios, labs, and broadcasters. "It reduces the number of physical deliveries to laboratories, editing rooms, and production offices", emphasizes Ouadi Guénich, Founder & CEO of Datacare. Furthermore, the integration of a data storage solution in a vehicle will substantially reduce the number of hard drives used during a production.

ECONOMICALLY AS WELL AS ECOLOGICALLY EFFICIENT

At French public broadcaster France Télévisions, going green is taken seriously. By 2020, the TV production group will cut 8% of its carbon emissions. **Sophie Delorme**, Corporate Responsibility and Sustainability Manager, gives an insight into the transition to sustainability.

How does France Télévisions contribute to the Ecoprod consortium's goal to green Film and TV production?

We have continued our contribution and we have also worked to promote the *Ecoprod Charter*. The *Ecoprod Charter* has been implemented by about 50 suppliers and production companies. By becoming a signatory to the *Charter*, they agree to implement sustainability practices. *Ecoprod* has conducted workshops with signatory companies to help them adopt best practices in their normal course of business. In addition to workshops on Green IT and Waste Management, we help the companies find suppliers that will service their sustainability requirements. After the one- or two-day workshop, they walk away knowing that it's pragmatic to be more sustainable, and that it's simple, too.

What kind of sustainable measures have already been implemented by France Télévisions?

Our group includes five TV channels and various satellite, radio, and streaming channels. France Télévisions made a commitment to implement sustainability across the entire company. Our environmental strategy is threefold: to reduce our carbon footprint; to make our programs more sustainable; and to use our position as a leading media group to raise awareness and drive positive change on environmental issues among our audience and partners.

We're going to reduce our carbon emissions 8% by 2020. This is critical because implementing and managing this program for the entire group is a formidable task. Besides reducing our carbon footprint behind the camera, we're also producing content that raises our audience's awareness of the different aspects of sustainability. Television plays a significant role in raising awareness on social issues.

What benefits motivate a broadcaster to go green?

Broadcasters can save money by reviewing production methods to reduce the amount of energy and resources used. Sustainable



Sophie Delorme, CRS Manager, France Télévisions

make sure that the replacement unit will be economically as well as ecologically efficient. All the locations in which we operate must be as sustainable as possible.

Which productions have been following the best practices?

It's not restricted to any specific type of production or format. Thanks to the upgrading of our studio facilities, we broadcast all our news shows in an increasingly sustainable fashion. And we are trying to green our productions and co-productions. A good example is the well-known French TV series *Plus belle la vie*,



Green screen shot from the sustainably-produced French TV series Plus belle la vie



News studio at France Télévisions equipped with LED lights

which adopted sustainable practices. They even produced a clip about it.

Are these productions using Ecoprod's Carbon Clap?

Not all of them. The Carbon Clap is a great tool to monitor carbon impact when producing a program. If they reduce water consumption, recycle more waste materials, and manage the travel itinerary, they can cut carbon emissions, which is sustainable as well as economical.

Does France Télévisions require sustainable measures for commissioned productions?

We're working on this issue with them. It's not obligatory yet. We're working with green suppliers who can meet our sustainability requirements. The next step is to enshrine eco-friendly production practices legally in the terms of co-production contracts. Every business in Europe has to cut its carbon emissions and increase its sustainability practices. The Film and TV Industry has to do its bit to reach this important goal. That's why the *Ecoprod* collective is so important. Because it helps producers assume the responsibility of making their production methods more sustainable.

AS GREEN AS IT GETS

With *Minuscule, les mandibules du bout du monde* (*Miniscule: The Jaws at the End of the World*), the sequel to *La Vallée des Fourmis Perdues* (*The Valley of the Lost Ants*), French directors Thomas Szabo and H el ene Giraud are continuing their green journey.

The black ant and ladybug from *La Vall e des Fourmis Perdues* flex their muscles and jump right into the new *Minuscule* adventure. The adventurous insects don't even know to which National Park *Minuscule, les mandibules du bout du monde* will take them. *Minuscule* producer Philippe Delarue, who launched a crowd-funding campaign on the French platform *ulule.com* in order to get additional financing, is still keeping the location secret.

In *Minuscule, les mandibules du bout du monde*, the queen of the black ants is suffering from low blood sugar. *Mandibule*, one of her worker ants, is a brave little fellow who wants to save her life by buzzing off to the village grocery store with his ladybug friend.

Minuscule, les mandibules du bout du monde builds on the initial 3-D animation/live-action adventure picture. Produced by the Paris-based company Futurikon, *Minuscule: The Valley of the Lost Ants*, was a huge box office hit in France that also raised the bar for sustainable production. While the animated insects were entirely designed and animated in the studio, the filmmaking duo Thomas Szabo and H el ene Giraud filmed the background shots in the Mercantour National Park in the Southern French region of Provence-Alps-Cote d'Azur (PACA). The entire film crew was accommodated in nearby lodgings, so everyone could walk or bike to the set.

The flowing streams and natural greenery were filmed with available light whenever

possible. The gaffers simply used reflectors instead of lights. A solar-powered camper, serving as production hub, supplied a low-voltage power generator. The attention paid to catering remains hard to surpass. The *Minuscule* crew had their meals at a local farm which specialized in organic food.

The use of *Ecoprod's* Carbon Clap provided the producer with a running calculation of the production's environmental impact. By reducing carbon emissions from 380 tons of carbon to only 51, *Minuscule* is a preeminent example of sustainable production. The production of the *Minuscule, les mandibules du bout du monde* sequel takes place primarily in the Ile-de-France region, where the project received  336,000 in production support.



Photo: Futurikon



“Climate change radically challenges our economic, social and individual behaviour because it requires new systems of value. The pioneering environmentalists of the 1970s began a process which has changed our view of nature – and it's up to us in the 21st century to act in the light of that know-ledge. Hopefully COP21 will be the start, accepting that fossil fuel cannot be the future of our energy, and that the true costs of our production and consumption cannot be measured only in money.”

Jerry Rothwell
Documentary Filmmaker

THE GREEN GODDESS

Catherine Puiseux, *Ecoprod* founder and CSR Director, TF1 Group, launched the first carbon audit of the audio-visual industry in France. In collaboration with Olivier-Ren  Veillon, she founded *Ecoprod*, which provides tools for sustainable productions.

How did your green mission start?

In 2006, I performed a carbon evaluation for the TF1 Group. It was the first time that the Bilan Carbone  was used in the media industry. The results were used to set criteria for commissioned productions, because 80% of TF1's programming is produced by outside production companies. Compared to that, other efforts, such as cutting energy usage in buildings, IT systems, and transportation, are areas that don't generate such a large carbon footprint although we do make our best effort to reduce it, too. Producers were not aware of the environmental impact they were making. I wanted to develop a tool box so that they could evaluate their carbon footprint.

How did you find partners?

I went to the Ile-de-France Film Commission because Corinne Rufet, Vice Pr sident de la R gion from the Green Party, conducted a survey in 2005 to determine the level of carbon emissions audio-visual productions were generating in Ile-de-France. I met Olivier-Ren  Veillon and in 2008 we decided to create *Ecoprod*. We got the governmental agency Ademe on board, which helped us to develop a tool for the audio-visual industry, the Carbon Clap, to evaluate a production's carbon footprint.



How many producers are using the Carbon Clap?

About twenty productions test or use Carbon Clap each month, which results in about 100 to 150 evaluations per year. We have about 7,000 production companies in France, which is due to the great number of independent producers. We also developed the *Ecoprod Production Guide* to provide sustainability suggestions and instructions for each production department. The idea is that crew members adopt these best practices and, in turn, pass them on to other productions. In 2014, *Ecoprod* launched the *Charter* as well as a certification label for its suppliers. About fifty companies have already signed on to the *Charter*.

Are TF1's in-house productions using these tools too?

We tested the tools first with R.I.S. The series *Jo* in 2012 was then produced carbon-neutral. Our tools and production methods work best with episodic TV fiction. *Ecoprod* is developing a new Carbon Clap, with more financial data to estimate the cost of the carbon footprint so that producers can assess the environmental impact of any item the production uses. Now, the question is how to get the audio-visual industry to adapt sustainable production methods more quickly.

Catherine Puiseux, Ecoprod founder and CSR Director, TF1 Group



TF1 TAKES GREEN STEPS

Thanks to the efforts made by Corporate Social Responsibility (CSR) Director Catherine Puiseux, the TF1 Group started carbon auditing based on the Bilan Carbone , which is now standard procedure. The company's continuous improvement plan goes beyond legal requirements to manage energy consumption, raw materials, and waste. Environmental issues have been factored into engineering projects at the design stage, whether it be on location, in the studio, or for IT systems. The installation of LED studio lighting made it possible to cut on-set power consumption below 7kW, ten times less power than a conventional studio uses. Burnt out studio lights are recycled through the Recyclum program.

TF1 has issued a policy for responsible purchasing that promotes fair trade and "green" products. The company buys cars with CO  emissions of less than 170g/km, and it has set up a car-sharing plan that uses electric vehicles instead of taxis. With initiatives like Sustainable Development Week, the TF1 Group encourages its employees to contribute to sustainable development. EcoVadis reviews and assesses the CSR policies of the Group's largest suppliers.



On the set of TF1's carbon-neutral production of the TV series *Jo*

THE GREATEST CHALLENGE OF OUR GENERATION

After making *March of the Penguins*, Academy Award-winning Writer/Director **Luc Jacquet** returned to Antarctica to shoot *Ice and the Sky*



French Writer/Director
Luc Jacquet

In *Ice and the Sky*, we learn that Claude Lorius was drawn to return to the Antarctic just as you were. Why is Antarctica so fascinating?

Living in the Antarctic gives you the feeling that you have to survive on your own. I really like the aesthetic point of view, the landscape and high geographic formations. It speaks to me very deeply. Perhaps also because the light changes all the time and because it is pure, since everything is white until the light changes just a bit, and the landscape hovers around you. It is absolutely incredible.

I also love it because it's a challenge, much like trying to understand who you are in the middle of a storm. It is interesting. It presents the true scale of human vulnerability before nature. I also love the relationships that the people who live in Antarctica create. You have to have solidarity and you have to take care of those people around you.

Everyone who goes down there is drawn by the same fascination. Maybe this is the reason why people who have gone to Antarctica befriend other people who have been there. We share so many experiences.

Do you see any parallels between Claude Lorius' life and yours?

Yes, there are many parallels. Even though Claude has got forty years on me, I first went to Antarctica for the same reason that he did. While I was a university student, I happened to read an ad looking for someone to live in Antarctica for a year. Like Claude, I found my vocation there by chance. For him it was science; for me it was filming. Most people go to Antarctica for the sake of adventure. But after the initial Antarctic experience, both Claude and I changed our plans and decided to do something different.

How did that change your life?

When you're in Antarctica, you get the feeling that you are hovering above the planet Earth, and you get a powerful sense of empathy for the planet because you are so far away from society. When you do return to society, you feel compelled to take care of the planet.

People who have lived in a space station get the same feeling. It's called "the overview effect".

As Claude Lorius explains in your film, a single air bubble can tell us everything about temperature, climate, and the impact of carbon emissions. So, has civilization also left its mark on Antarctica?

To find evidence there of human environmental impact means that we no longer have any choice. We are living on a raft, so we have to take into consideration the fact that everything has an impact somewhere else in the world. For me, this was the real revelation inspired by Claude's work. He said that if we burn something somewhere, it's going to have an impact elsewhere. And no one, either rich or poor, is going to be spared. People have to take responsibility for their actions.



Photo: Eskward Wild Touch/Luc Jaquet

French glaciologist Claude Lorius has taken part in more than twenty polar expeditions, most of them to Antarctica

The scientific discoveries that Claude Lorius published in the mid-1980s could have made a difference, but his warnings went unheeded. Do you expect major policy changes at COP21?

Claude is optimistic because no one talked about global warming thirty years ago; today, everyone is aware of it. But this is not enough, despite the fact that there are many people in civil society who are committed to taking action. Of course, things are not going fast enough to reply successfully to the challenge of global warming. We have to create a new level of engagement. We need people who represent mankind instead of the presidents of certain individual nations. We have to go to the top to make decisions for all humankind, but this policy plateau doesn't exist yet.

Is *Ice and the Sky* a call to action?

This is a political film. I am fed up with seeing the planet deteriorate while people do nothing. The older I get, the louder I want to shout it out. We have all the means to solve the problem. We have the energy, the power, all the

gadgets and machines, but we are still unable to solve the problem. I think this is the greatest challenge our generation faces.

What impact can films have?

Everyone is aware of what is happening around us, so now the problem is to connect people to this issue. I think it's better to connect people to the issue emotionally. A well photographed story about an extraordinary man is better than repeating the fact that carbon dioxide levels in the atmosphere are rising. I'm trying to find a new way to connect people emotionally.

What approach is your non-profit organization Wild Touch taking?

We are conducting a lot of educational programs because, as part of a network of scientists, teachers, artists and filmmakers, we are able to find a common language to help young people and educators understand what we're talking about when we talk about global warming. Marion Cotillard did the voice-over for the *Ice and the Sky* educational program

because it was important for her and because she wanted to do something for the planet. We also produced educational programs on forests. The next topic will be biodiversity.

Are you planning anything for COP21 in Paris?

I will be in Antarctica where we'll be shooting a film with a crew of ten people. During COP21, we're going to transmit live video of penguins from Antarctica every day. We're going to screen it at the Bibliotheque François Mitterrand in Paris to raise awareness on both penguins and the emergency situation in Antarctica.

I will be there with two highly regarded French photographers: Laurent Ballesta who's going to dive deep underwater with the penguins; and Vincent Murnier, who'll take the high ground. They can get absolutely amazing shots. Emotion and the power of the image will raise awareness during COP21. The projection screen is more than 60 meters high, so it will be a towering image.



Photo: Eskward Wild Touch/Marc Penney

Claude Lorius and Luc Jaquet



Photo: Sarah Del Ben

Blue ice forms after snow falls on a glacier

GREENING THE SILVER SCREEN

With the *Film4Climate* initiative, the World Bank Group's *Connect4Climate* program is prodding the film and entertainment industry to take action on climate change. The two-fold mission is to reduce the environmental impact of film production as well as to raise awareness about climate change through cinema.

"Cinema plays a fundamental role in raising awareness on social issues and delivering effective calls for action", emphasizes Lucia Grenna, Program Manager at *Connect4Climate*, "although documentary has a rich history of environmental engagement, drama has traditionally been less interested. Yet a groundswell of fiction-film directors are now starting to use their art to tackle the important issues of climate change and environmental preservation".

Since its launch, *Film4Climate* participated in many industry gatherings and film festivals where it forged numerous partnerships, and has created a green global network of about 200 knowledge partners, including film institutes, film commissions, directors, and filmmaker networks worldwide. "Our goals are to work together to develop proposals to mitigate the environmental impact of film production, as well as to raise awareness about climate change through cinema and to encourage positive action", said Grenna.

At the UNFCCC 21st Conference of the Parties (COP21) in Paris, where global leaders are expected to adopt a binding resolution on the long-term reduction of greenhouse gas emissions, *Film4Climate* will give citizens throughout the world a voice by presenting the industry's best practices and by showing short films on climate change created by filmmakers from all over the world. For example, *The Film a #Day4Climate* Action video challenge on November 29 is inviting people to tell a three-minute story on how we can prevent the perils of climate change.

Sustainable solutions from around the world will also be presented at the *Sustainia Awards* during COP21. In cooperation with *Connect4Climate* and the UN Global Compact, ten projects and technological innovations will be presented, all of which have qualified as finalists. Among the projects is an online application that uses high-resolution mapping and weather data to reveal the solar potential of every rooftop in any given community.

Another project offers communities the chance to collect plastic waste for a Plastic Bank, where it can be recycled and repurposed. In return, this company is offering access to 3D printers to participants so they can create products for themselves. Further sustainable solutions include an energy-positive house, streets designed for walking and biking, as well as green bonds issued by the City of Johannesburg, South Africa, which will finance projects to mitigate climate change, and it also includes a bio-gas to energy project. Innovative projects from nine different countries were reviewed by an international Awards Committee chaired by Arnold Schwarzenegger. The *Sustainia Community Award* will go to the project that receives the most online votes.

Another key issue is climate change awareness. *Film4Climate* already counts on the extraordinary support of renowned Directors such as Bernardo Bertolucci, Atom Egoyan, Marc Forster, Fernando Meirelles, Mira Nair, Walter Salles, Wim Wenders, and Alfonso



New York City, September 2014: UN Climate Summit/People's Climate March

Photo: Max Edkins

THE FILM4CLIMATE TIMELINE



Cuarón. Many of the directors served as jury members for the *Action4Climate Documentary Competition*, whose jury was chaired by Bernardo Bertolucci. "We were amazed by the originality of the stories and the genuine concern shown by these young filmmakers about the effects of climate change", said Bertolucci. "They described the effects of climate change from hundreds of different points

of view. Selecting winners was an almost impossible task".

Besides promoting competitions and presenting special previews and events, *Film4Climate* is strengthening its presence at international Film Festivals and key international film-industry events. At the Venice Biennale Mostra del Cinema, *Film4Climate* hosted *Green Day*

Venice, which featured a public conversation with Mexican Director and Jury President Alfonso Cuarón and his brother, environmental scientist Alfredo Cuarón. "Right now, we don't have time to take small steps with different initiatives", stressed Alfonso Cuarón in reference to the upcoming COP21 in Paris. "It's time for a bigger movement." The brothers pointed out that there is a need for a new economic

system that treats people all over the world fairly. "But change is built one step at a time", emphasized Alfredo Cuarón. "Cinema can have a positive effect. The power of images is amazing". He suggested creating some general standards for filmmakers worldwide in order to minimize the environmental impact of filmmaking and to maximize the great resulting benefits. "Science and the Arts can work

together and change the world now", added Alfonso Cuarón. "We can't wait. We need change. The future is now, because what we do now will affect coming generations".

Similar assessments have been made at the *Film4Climate Green Film Forum* that took place at the 30th Guadalajara International Film Festival in March 2015, where the participants

issued a declaration of the film industry's commitment to social and environmental responsibility, including biodiversity conservation, waste disposal, and climate change awareness, and action.

"Every step starts with awareness building", says Grenna. "That is why we launched *Film4Climate*".



"As filmmakers we have a double opportunity to help ensure that life itself – the life of our precious earth and that of all beings who depend on its bounty – can continue. Every step of the filmmaking process can be made without waste and thoughtless exploitation of resources in the physical world."

Sally Potter
Director



Gwen Stefani performs at Global Citizen 2015 Earth Day



Actor Don Cheadle (Years of Living Dangerously)



German director Wim Wenders is one of the Film4Climate ambassadors



Donald Ranvaud, C4C, and Olivier-René Veillon, Ecoprod



Alfredo and Alfonso Cuarón with Italian actress Claudia Gerini

THE POWER OF PERSUASION

With the *Film4Climate* initiative, the World Bank Group is taking on climate change. **Lucia Grenna**, Program Manager and **Donald Ranvaud**, Creative Producer at *Connect4Climate*, World Bank Group, give us a strategic preview.

What does *Film4Climate* want to achieve?

Film4Climate is a global initiative of the World Bank's *Connect4Climate* programme (connect4climate.org). It aims to help reduce the environmental impact of film production and raise greater awareness of climate change issues through the use of cinema and the whole visual media. The film industry can both set an example and save money by reviewing and revising production methods to reduce the amount of energy and resources used. What is more, messages woven into an engrossing story on the big screen do indeed change minds, and hearts! Cinema and the visual media do indeed have great powers of persuasion. We are bringing together industry leaders who are already actively greening the silver screen, hosting high-profile events, facilitating climate change workshops with film industry heavyweights and through video competitions we are energizing young people to share their climate experiences.

We're fighting the battle on two fronts. The first is to reduce the carbon footprint of individual productions. Thanks to country-specific carbon calculators, which are now in place, the green production system is up and running. The studios have also been receptive to this idea and have taken encouraging action. The second front is introducing the issue of climate change into film narratives that treat green consciousness as a normal frame of mind that prompts green behavior.

Climate change is a global problem – but there are different degrees of awareness across various countries and industries. What impact can the film industry have?



Photo: Film4Climate
Lucia Grenna, Program Manager at Connect4Climate, World Bank Group

As Jim Yong Kim, President of the World Bank, said: "We will never end poverty if we don't tackle climate change." Our changing climate is affecting the poorest people the most. We have to find solutions and find them quick. The film industry is not one of the most polluting, but because film has great powers of persuasion it can be a leader going forward into a solution oriented future. In the US, there are still lobbies and political action groups that deny the existence of climate change. The film industry – by using the scientific data verified by 99% of researchers to provide a solid background to its creative expertise – can get a message across much more easily and effectively than any other industry.

Since its launch, what are the most significant projects that *Film4Climate* has undertaken?

The *Action4Climate* competition that we launched in early 2014 for young aspiring film makers had a big impact. It attracted hundreds of entries from all around the world – from more than 70 countries. Among them was a beautifully animated film by a fourteen-year-old filmmaker from Argentina and a stunning poetic vision of climate change from the Philippines. We have also run other competitions for short public service announcements and for music videos, for example. We also run workshops for film makers to determine how they can most effectively use their discipline to make an effect. We also engage directors such as Bernardo Bertolucci, Wim Wenders and others to act as our ambassadors, not only in their own countries, but throughout world, as well as in the films they make. Director Marc Foster made water a central issue in his James Bond movie *Quantum of Solace*. This has never happened before in such a big movie. We have also liaised with James Cameron, who backed the Emmy award winning documentary series *Years of Living Dangerously* documentary series about climate change, and help to promote all films that seek to address climate issues. As indicated, we are now working with the industry to establish the *Climate Charter* for film making.

Do we need role models?

Role models are always a help and can definitely help persuade people to change their behavior, but each individual has a responsibility to reduce their own private carbon footprint. Individuals need to take stock of their lives and to realize the difference between what they really need and what they simply want. Most of the time we are just chasing

after material things, ending up surrounding ourselves with clutter without ever focussing on real issues. Role models can help instill a sense of responsibility and can help build and consolidate groups of individuals to come together to motivate their communities and make change happen.

Does *Film4Climate* have any suggestions for the film industry?

If producers acknowledge and apply Best Practices, then they're going to reduce their carbon footprint. For example, the carbon calculators *Carbon Clap* in France and *Albert* in Great Britain are being used by over 1,000 production companies. With tools such as these, producers can see their progress, step by step, towards reducing the carbon footprint. Filmmakers also need to be aware that this is not simply a moral imperative, but an economic question as well. The evidence is there that sustainable film making can save substantial amounts of production money if done properly. The creation of a fund and maybe award structures, to reward sustainable productions that make substantial reductions in their carbon footprint is entirely conceivable and desirable

Is it possible to develop a globally standardized green protocol for Film and TV production?

Different carbon calculators in different countries – in Belgium, Germany, Italy, for example – are doing their job but there are many differences between them and rightly so, since the process depends on the conditions in each country. However, we feel it is possible to establish universal precepts for use as best practice guidelines in every country and I think it's inevitable that we will eventually be able to establish a universal, standard protocol. Right now, we're suggesting that producers keep using the carbon calculators they're most familiar with. Once we run enough production data through the system, we'll be able to establish protocols

that can form the base for creating a sustainability fund to support deserving productions. The other strategy is to create a Green Oscar in order to award outstanding individuals or companies who have distinguished themselves in either environmentalism or specific productions.

How could this green film fund be financed?

To film financing institutions, we're proposing the idea that the last 10 percent of either the tax incentives or financial support be tied to a production reducing its carbon footprint. We need to get the whole film industry behind this in a big way. We still need data to develop a financing model.

What is *Film4Climate* doing at COP21?

We are asking filmmakers all over the world to come together on the day of the Global Climate March on November 29th to shoot and edit a three minute film on the march in their city or a climate action undertaken that day, and to upload it the same day on Vimeo, who is partnering with us for this project. We will produce a feature-length program with this material and make the best shorts available online. We also plan to screen a selection of these films at the *Sustainia Awards* ceremony and to premiere a twenty-minute segment from Slater Jewell-Kemker's film, *An Inconvenient Youth*. Fernando Meirelles will also join us at the *Sustainia Awards* ceremony to present the *Film4Climate Charter* that we will be working on in an all day session supported by *Ecoprod* before the conference in collaboration with sustainable film making organisations.

Are you expecting real changes in sustainable policies to result from COP21?

We'll have to wait and see – especially in terms of how policies agreed upon might be finance, but generally speaking I think we can expect changes and progress. Governments of 146 countries have made commitments to reducing carbon emissions. Two-thirds

of the countries that produce 84 percent of carbon emissions have already committed themselves. This is a positive sign; this is huge! Many of the remaining countries are not big polluters, but I'm certain they will be convinced by both the arguments and the commitments made by other countries. If this doesn't happen, then it maybe the time to find some other mechanism to replace COP.

IMPRINT

Publisher

Green Film Shooting / Birgit Heidsiek
Hermann-Behn-Weg 21
20146 Hamburg, Germany
Tel. +49 40 410 45 07
Fax +49 40 41 62 33 04
info@greenfilmshooting.net
www.greenfilmshooting.net

Film4Climate – Connect4Climate

The World Bank
1818 H Street, NW
Washington, DC 20433, USA
Tel. +1 202 473-3786
connect4climate@worldbank.org
www.connect4climate.org

Ecoprod

c/o Ile-de-France Film Commission
Joanna Gallardo
30, rue Saint Augustin
Paris 75002, France
Tel. +33 1 5688 1288
Fax +33 1 5688 1219
contact@ecoprod.com
www.ecoprod.com

Editor

Birgit Heidsiek

Title

Photo of Arnold Schwarzenegger:
Frederic Legrand – COMEO/Shutterstock.com

Layout

[take shape] media design,
Markus Schaefer, Hamburg, Germany

English-Language Copy Editor

Milo Yeliesjevich, Chicago, IL, USA

Printed on 100% recycled paper

“Climate change is severely impacting the health of our planet and all of its inhabitants, and we must transition to a clean energy economy that does not rely on fossil fuels, the main driver of this global problem. Now is the time to divest and invest to let our world leaders know that we, as individuals and institutions, are taking action to address climate change, and we expect them to do their part this December in Paris at the U.N. climate talks.”

Leonardo DiCaprio
Actor / Producer / Environmentalist

James Cameron is one of the Executive Producers of the award-winning Docu Series *Years of Living Dangerously*, which tells the stories of real people from across the planet who have been affected by climate change. Among the correspondents are Don Cheadle, Arnold Schwarzenegger, Harrison Ford, and Jessica Alba

HOW FAR ARE WE WILLING TO GO?

At COP21 in Paris, 23-year-old filmmaker Slater Jewell-Kemker will present clips of her first feature-length film *An Inconvenient Youth*, which she began shooting when she was fifteen years old. Described as *An Inconvenient Truth* meets *Boyhood*, the film follows the rise of the global youth climate movement.

What inspired you as a five-year-old to shoot films?

I was born in Los Angeles in 1992, a time when a lot of people were inspired by the Internet and were looking at the possibilities of how to use this powerful tool in a positive way. My mom's friend Jeanne Meyers, who created the *My Hero* project, gave me my first camera and arranged for me to meet with the Vietnam War veteran and peace activist Ron Kovic. I sat in his lap while he wheeled me around his apartment talking about peace and showing me his artwork and photographs. I'll never forget how kind and gracious he was with this little kid haphazardly filming everything.

As little kids we gain this kind of emotional intelligence and understanding



SCNCC is a joint US-Canadian coalition of ecosocialists united in the belief that capitalism is driving climate change



In 2008 Slater began production on *An Inconvenient Youth*

about other people and the world around us through stories. Being so young and exposed to people like Ron Kovic, Jeanne Meyers, and Kathy Eldon (Creative Visions Foundation) kind of planted this seed in my head that we're all connected and that we're all family and that, yes, we CAN make a difference in the world around us.

As a very young environmentalist, you interviewed stars and well-known scientists such as Leonardo DiCaprio and Jean-Michel Cousteau. Are adults more open to children?

I think people are open to children and talking about the world in a more honest and open way because that's how children look at the world, naturally. We ask questions, we are curious. We look at the world around us without bias. When I was interviewing Jean-Michel, I was thirteen and he told me: "I have given up on the species called adults. I only talk to young people because I can have a meaningful conversation with them, and I don't have to go through the ritual of flirtation that basically kills their willingness to open up more. They are willing to let themselves be vulnerable and emotional".

Where have you traveled as an environmental filmmaker?

I've been to youth conferences in Slovakia, the Czech Republic, the Netherlands, New York and Japan. I've traveled to agricultural communities in Nepal, South America and Northern Alberta. When you follow the story of climate change, you follow the story of how our world is changing and of how we, as people, are changing. It's a global issue. Sometimes it affects one nation more than others, but eventually we're all going to be affected.

Was the COP in Copenhagen in 2009 a turning point for you?

Copenhagen was being touted as a huge moment. World leaders would finally come together and created a fair, ambitious, and binding deal that would lead all of humanity into a more sustainable and fair world: This was the story that was being sold by corporations like Coca-Cola with their "Hopenhagen - Open a Bottle of Hope" campaign. It was everywhere. It felt like: "Wow, maybe this really is the moment. Maybe we can get everything that we've been fighting for". There was a lot

of momentum building towards COP15 - and then the bubble of delusion burst.

Did you expect a policy change?

It shouldn't have been a surprise that governments found it difficult to work together. And it shouldn't have been a surprise that they were digging in and putting their own national interests ahead of moving together for the global community. But it really was devastating. You look at the science and you look at anecdotal evidence and it's saying very clearly, with a loud voice, that we have a very small window of opportunity to change the way we live with each other and the planet in order to adapt to climate change. We've now gotten to the point where we can't reverse climate change, but we can still lessen its effect. We can still adapt in a way that is sustainable and efficient and that will ensure our survival. It's cutting it very close, though.

Do you think that the warnings were heard?

Seven years ago scientists were saying that we have maybe five to ten or fifteen years at most to do something; now, seven years later, a lot of people are getting to the point where they're wondering whether we can trust this system or not, whether can we trust the UN Climate Change Conferences, because they told us seven years ago that it was all going to happen, but now it's seven years later and they're saying the same thing. For me, and I think for a lot of other people too, we've come to the point in our thinking of "Okay, we gonna give you this opportunity. It's either all gonna happen here or it's going to be another Copenhagen and then... we're gonna have to find another way to do this". I'm 23 years old, they've already been speaking all my life, it's unacceptable to not have a deal already.

What is the essence of this experience?

Copenhagen was inspiring, but frankly, we can't let it happen again. It's a brutal reminder of the ticking clock of climate change, and it hopefully shows that we can do better. I was just watching a video clip of the Filipino negotiators at COP19, not too long after super typhoon Haiyan. A delegate broke down in his address to the conference members and delegates and was saying: "If not us, then who? If not now, then when? If not here, then

where? What my country is going through due to this climate-related event is madness. The climate crisis is madness. We can stop this madness. It is the 19th COP but we might as well stop counting because my country refuses to accept that a COP30 or a COP40 will be needed to solve climate change". That was two years ago.

Do you still have any hopes for the COP21?

You have to have hope or you'll go crazy. I am cautiously optimistic about COP21 because there is a part of me that says "There's still a chance" and you take it in with the idea that maybe everything could work out and we can finally start on this course to change how we live. But I'm not looking at it as the only solution.

When will your first feature-length film *An Inconvenient Youth* be shown?

I've been making it since I was fifteen and it ended up taking over my life a bit. My team and I are hoping to premiere the complete film next summer in May. At COP21, I'm going to show a 30 minute version that includes the journey of the last seven years, but also the most recent trip to Northern Alberta where the tar sands industry is located. It's home to the world's largest industrial project on Earth. A lot of climate activists are looking at it as a climate bomb - that if the carbon in the oil sands is released, then we would have no hope of adapting.

Has your film been growing in step with your experiences?

The film started off when I was fifteen visiting an environmental summit in Japan as a young Canadian youth delegate who was concerned about the environment who made new friends in Bangladesh and learning how my life can negatively impact someone half way around the world. I am learning about sustainability and adaptation in the UN which is leading me back to the simple connection between climate change and the environment and our addiction to oil. Because of our addiction to oil, we have significantly damaged not only the planet and our own health, but we have also caused the climate to be changing as rapidly as it is now. The film is really coming back to that awareness and asking the question: What's the bottom line? How far are we willing to go?



December 2010: Slater Jewell-Kemker shooting at the G8 Summit in Mexico

WE WILL SUCCEED

Famous Hollywood star, politician, and environmentalist **Arnold Schwarzenegger** launched the nonprofit environmental organization R20. Its mission is to help subnational governments around the world develop low-carbon and climate-resilient economic development projects.

What are the biggest obstacles and challenges to fighting climate change?

I believe that if we want to fight climate change; if we want a green energy future; if we want real action that matches our vision, we must do a better job of communicating. We have to talk about things that matter to people.

We should look at this like a four-legged stool; right now we're using a one-legged stool. A one-legged stool is wobbly and unbalanced. A four-legged stool is strong. The first leg is jobs. Who could be against this? The second leg is national security. For decades, industrialized democracies have been in the terrible position of having to purchase oil from foreign countries, sending vast amounts of money outside their borders. A green and sustainable energy future would end this dependence and give us energy freedom. The third leg is health. Pollution kills. One study by Cornell University concluded that a staggering 40% of deaths worldwide are caused by water, air, and soil pollution. Why no uproar or protests in the streets? Because we are failing to communicate – it's our job to get that message out. And the fourth leg, of course, is climate change. You can have the best project in the world but if you don't promote it and market it the right way, no one will buy it. You have nothing.

The R20 addresses all four legs of the stool. In partnership with the foundation and investment community, the R20 is proving to be the driving force to take full advantage of new technologies in order to strengthen local economies, improve public health, create new green jobs, lower greenhouse gas emissions and reduce our energy consumption.

What impact can the film and media industry make?

You know I'm a huge fan of the film industry! And I believe that the film and media industry can make a huge impact. Now in the age of social media, messages can be spread throughout the world – videos can go viral and can reach people in all four corners of the Earth. I feel like this provides a huge opportunity. As I mentioned above, the media has a powerful role to play in the fight against climate change.



Hollywood star, politician, and environmentalist Arnold Schwarzenegger

Through films, television, and all media outlets, we must continue to deliver the message that solutions are out there and are happening now. We have to make it attractive for people to take action. Movies like *Avatar*, *The Day After Tomorrow*, and documentaries like *Years of Living Dangerously*, which I was proud to be a part of, have been very popular, reaching and inspiring millions of people. And I believe films in particular can really inspire and make people want to take action. It's great to see some of my film-industry friends working with climate related organizations to push those messages forward.

What approach is your organization R20-Regions of Climate Action taking?

R20's mission is to promote and implement low-carbon projects at the subnational level that are designed to produce local economic and environmental benefits in the form of: reduced energy consumption and greenhouse gas emissions; strong local economies; improved public health; and new green jobs. Thanks to its members, partners, and observers, the R20's activities connect more than 600 subnational and local governments around the world in



connects them to the right companies. And we are aware of the fact that it isn't just about the know-how, it's also about finance. There is tremendous opportunity for foundations, philanthropists, social/impact investors, and others to be a part of a real solution by joining this unprecedented group of partners.

The R20 is in a way a matchmaker – you bring the investment capital or grant funding and we connect you to a willing government and technology partners that can successfully implement low-carbon projects. I believe this is an approach that could be the catalyst for real change. Imagine removing the barriers to finally bringing finance into the picture and you will see the rapid deployment of clean-energy projects that will improve the global economy, lower emissions, and provide new jobs. The government members of the R20 are eager to open the door for investment in order to facili-

both the government and investors come up with a low-risk, win-win deal. This project is going to increase the energy supply of the whole country by 10%, so we're very happy to have been able to help make that happen. This is going to enable us to embark on a huge initiative to deploy 1 GW of renewable energy across West and Central Africa.

Do you expect any policy changes to result from COP21?

I have great faith in the outcome of the Paris summit. I believe that we came out of the Copenhagen summit learning valuable lessons about what not to do, and as I've noted previously, we learned that taking action regardless of the negotiations is the only path forward.

Of course, most promising is the ongoing cooperation that was launched at a sum-



Shaking hands with Carlos Francisco Portinho, General Secretary of the State of Rio de Janeiro, Brazil



Regional leaders and government officials at the World Summit of Regions for Climate 2014 in Paris



R20 members signing the Memoranda of Understanding

tate a variety of projects like renewable energy production; boiler efficiency upgrades; waste-to-energy projects; and replacing old street lights with efficient solar-powered LED lighting.

What kind of projects are emerging from R20's Green Finance Network?

I am very excited to say that we have projects going on all around the world – Algeria, Burundi, Brazil, China, Indonesia, Nigeria, etc. In Oran, Algeria, for example, we're working with the national and provincial government to transform the current waste-management system into an efficient money-maker by introducing waste sorting, recycling, and composting. In just a few months since the project has been operational, we've sorted and recovered 113 tons of waste! The local communities where we launched the household recycling initiative have been incredibly supportive and proud to be part of this movement. We are also working with Dapeng in China to overhaul their waste management processes.

R20 recently sealed a deal between the government of Mali and our partner Akuo Energy to build a 50MW solar PV plant in Kita. We worked with our investment network to structure and finance the project, and we helped

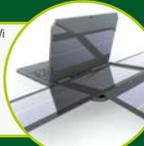


Arnold Schwarzenegger, Chairman and Founder of R20, welcomed over 500 participants at the Summit

mit meeting held in 2014 where an historic accord was sealed by President Obama and President Xi Jinping, who both pledged to enact policies to cut emissions significantly. President Obama pledged that the United States reduce carbon emissions up to 28% by 2025, while President Xi vowed that China would halt its emissions growth by 2030. That announcement was a fantastic breakthrough after decades of deadlock on efforts to forge an effective global accord on climate change. Then, as a follow up in September of this year, President Obama's top climate change negotiator met with his Chinese counterpart to announce joint actions by cities, states, and provinces in both countries to reduce greenhouse gas emissions. These developments make me very hopeful that by continuing this level of cooperation we will have a positive and possibly unprecedented outcome at COP21.

Finally – I'm most confident because of the leadership of UN Secretary General Ban Ki-Moon. He is a tremendous leader and visionary and is deeply committed to a positive outcome at COP21. He recently remarked that an agreement in Paris "must mark a decisive and irreversible turning point in the world's collective response to the climate challenge". I believe that we will succeed.

THE ABC OF SUSTAINABILITY

- A**  **Awareness** is a necessary condition for any green action
Photo: lichtkunst.73/pixelio.de
- B**  **Best Practices** are the tools and strategies that may be adopted by any production in order to become more sustainable
Photo: FFHSH
- C**  **Carbon Calculator** as, for example, the Carbon Clap by Ecoprod, an Excel tool used to measure the carbon impact of an action
Photo: Ecoprod
- D**  **Dispenser** for water is a practical solution on film sets to substitute for plastic bottles
Photo: Niko Tavernise
- E**  **Energy efficiency** is a key principle that must be applied during film production because energy consumption is one of the biggest sources of carbon emissions
Photo: Rainer Sturm/pixelio.de
- F**  **Forest Stewardship Council (FSC)** is the certification agency responsible for granting a seal of approval to sustainably produced wood and wood products
Photo: Erich Keppeler/pixelio.de
- G**  **Grid**, drawing energy from the electrical power grid is more environmentally friendly than using a diesel-powered generator
Photo: Egon Häbich/pixelio.de
- H**  **Hybrid cars** lower the carbon footprint of automobiles
Photo: Ford
- I**  **Innovative ideas** and incentives can inspire the cast and crew to increase their environmentally friendly efforts
Photo: Grand Parc - Bordeaux, France, CC-BY-2.0, <http://flic.kr/p/eUgFX6>
- J**  **Junk**, i.e., metal, carpet, polystyrene, pallet wrap, sash, and non-rechargeable batteries are often recyclable
Photo: Tamtam Film
- K**  **"K-cups"**, which are used in modern coffee machines are a no-no for any sustainable production. Please don't use them
Uncredited photo
- L**  **LED lights** are much more energy efficient than incandescent. Their cost is offset by energy savings, so it pays off in the long run to use them
Photo: Lightequip
- M**  **Management** by an Eco Supervisor is crucial for a production's sustainability efforts from prep through wrap, so that solutions may be found and implemented in all departments
Photo: Niko Tavernise
- N**  **Natural cosmetics** should provide ingredient transparency in order to make sure that the products are chemical-free and have not been tested on animals
Photo: J.P.W. Peters/pixelio.de
- O**  **Organic food** is healthy and can be a real improvement for catering
Photo: Helene Souza/pixelio.de
- P**  **Paper distribution** should essentially be eliminated at any production. Schedules, call sheets, production reports, crew and contact lists can be put in dropbox folders and distributed via email
Photo: Cristine Lietz/pixelio.de
- Q**  **Q.rad digital heater**, a combined multi-processor/electric heater. Instead of cooling the computer's server, its heat is used to heat a room
Photo: Quarnot Computing
- R**  **Rechargeable battery** systems save a fair amount of money as well as hundreds of batteries during production
Photo: Niko Tavernise
- S**  **Solar-powered generators** are a smart and silent solution to meet off-grid power needs of a production
Photo: Daria Mnych
- T**  **Transportation by train** instead of planes is one of the key elements of Best Practices; it minimizes carbon emissions
Photo: Erich Westendarp/pixelio.de
- U**  **Use laptops** instead of desktops because they are more energy-efficient and shut down all devices over-night. Nearly 75% of the electricity used by electronics is consumed while in standby mode
Photo: WeWi
- V**  **Vegetarian dishes** on the menu are a delicious alternative. According to scientific research, a plant-based diet with grain products, vegetables, and fruits has health as well as environmental benefits
Photo: Peter_Pleischl/pixelio.de
- W**  **Waste separation** is essential for the environment and it's easy to do. It can even recoup its cost in some countries
Photo: Niko Tavernise
- X**  **X-Men: Days of Future Past**, a 2014 American superhero film based on the fictional X-Men characters who appear in Marvel Comics, was sustainably produced by 20th Century Fox
Photo: 20th Century Fox
- Y**  **Yes Men**, the nom de guerre of two New York filmmakers who create provocative media actions in order to raise awareness, such as their film *The Yes Men Save World*
Photo: The Yes Men
- Z**  **Zero carbon impact** can balance a production's carbon impact by participation in a sustainable project, such as reforestation
Photo: Forest Carbon Group