



Global Infrastructure Basel

**5th GIB Summit
27–28 May 2015**

Report

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1 Introduction

The 5th Global Infrastructure Basel Summit took place from 27th-28th May 2015 at the Hilton Basel, Switzerland. More than 300 participants from over 40 countries and in excess of 100 cities took part in 3 strategic plenaries, 1 capacity building session, 7 workshops and a final mixer during which the main summit conclusions were shared. Taking into account the feedback received from participants at last year's Summit, the programme for this year was adapted to reduce the number of parallel sessions. This allowed participants to attend and contribute to the majority of the discussions. In addition, instead of organisation separate investment fora, all 47 projects selected for this year's Summit were presented in poster format during a dedicated project presentation session. This ensured that the 30 investors present at the Summit were able to see all the projects at a glance and focus on the particular projects they were interested in. The total investment sought by the projects was approximately USD 7.4 billion.

2 Executive Summary

We are currently in a unique and exciting period in terms of infrastructure investment opportunities. Never has financial liquidity in the international market been so high, never has the demand and need for infrastructure investment been greater. Hans-Peter Egler, CEO of Global Infrastructure Basel Foundation delivered the million Dollar question in this regard: Will the international community be able and ready to come together and define projects in order to transform the current high levels of liquidity in the market into real impact?



Audience during the opening plenary

Jordan Schwartz, Head of the Global Infrastructure Facility (GIF), The World Bank Group, began by highlighting that “there is massive demand in infrastructure in macroeconomic terms, but this doesn't necessarily convert to projects, and infrastructure is not always structured as projects.” The key challenge we are faced with at present is therefore the lack of accessibility to the available liquidity. He pointed out that Investors are increasingly aware of the need to support sustainable infrastructure projects, but there is still a large investment gap both in developing and developed countries due to the lack of bankable projects. Too many project proposals are poorly structured, with no business plan and no executive summary, poor language and layout, and too many intermediaries.

Speakers highlighted the need for the financial community to work together and focus on sound project design and preparation. To this end, a project preparation tool, preferably focusing on Environmental, Social and Governance criteria should be developed in order to increase the number of bankable projects.

Dorah Nteo, Head of the Office of the Executive Mayor, City of Tshwane, emphasised that financial mechanisms and incentives must also be in place and insulated from political agendas to encourage targeted investment. The public sector can then harness the first-mover advantage, before passing on opportunities to the private sector to ensure the optimal use of any particular asset.

Guy Morin, Mayor of Basel, underlined that to overcome the challenge of the financing gap, it is crucial to substantially increase the project pipeline of bankable and sustainable infrastructure projects, to improve the attractiveness of infrastructure investments and to channel available liquidity in the right directions. To achieve this, there needs to be a strong network and partnerships among different stakeholders at the local and international levels.

Setting the tone for the United Nations Climate Change Conference, COP21, in Paris at the end of this year, the 5th annual Global Infrastructure Basel Summit sought to tackle the above-mentioned challenges under the theme „Financing Sustainable and Resilient Infrastructure: Transforming Momentum into Real Impact.“ Discussions took part in the form of strategic plenaries, a capacity building session, and a series of workshops that focused on the following headings:

- **Measuring Risks: The Influence of Ratings on the Infrastructure Market and Alternative Risk Mitigation Approaches**
- **Why are Sustainable Infrastructure Projects so difficult to structure?**
- **Increasing the Efficiency of Sustainable Infrastructure**
- **What is the role of the public and private sector in terms of implementing equitable and sustainable Transit Oriented Development?**
- **Making the Infrastructure Asset Class more Sustainable**
- **Solid Standards and Ratings for Project Financers and Designers**
- **Closing the Financing Gap in Urban Resilient Infrastructure**

This report has been structured by focusing first on the plenary sessions, followed by the capacity building session and then the workshops. A dedicated section containing summaries of all the infrastructure projects presented during the Summit can be found at the end of this report. Strategic Plenary Sessions

21 Opening Policy Plenary: Enabling Stakeholders to Capitalise on the Current Market Situation to Increase Investment in Sustainable Infrastructure

Guy Morin, Mayor of Basel, welcomed the participants of the 5th GIB Summit by stressing the need, in particular for developed cities like Basel, to increase sustainability at the local level whilst focusing on the overall global impact. Sustainability must focus first on reducing greenhouse gas emissions and energy consumption without negatively effecting biodiversity. In order to successfully tackle the sustainability challenges of today and tomorrow we must build strong networks and partnerships between different stakeholders at the local and international levels.

Bruno Oberle, Director, Swiss Federal Office for the Environment (FOEN) pointed out that our societies and the quality of life of our people and industries are greatly affected by infrastructure development because all types of transportation and telecommunications are supported in this way. He also warned about the interconnected relationship between infrastructure development and the overuse of natural resources. Development of infrastructure results in more sustainable development because it strengthens key industries, like communications and trade, and increases national competitiveness, reducing the pressure on natural resources. However, expansion of such industries



Bruno Oberle, Director, Swiss Federal Office for the Environment



Jordan Schwartz, Head of the Global Infrastructure Facility (GIF), the World Bank Group

causes more pollution and adversely affects the environment. Infrastructure investments are long term and hence must be smartly planned to make them sustainable. The public and private sectors must collaborate in this regard because the public sector cannot sustain these projects on its own.

Jordan Schwartz, Head of the Global Infrastructure Facility (GIF), The World Bank Group, began by pointing out that there are plenty of funds to match investment needs in sustainable infrastructure. The key issue at hand is the lack of accessibility to this liquidity. The financial community should focus on sound project design and preparation, which is where GIF

can play a major role by helping to build up pipelines of investment for projects, helping investor signalling in the market, improving the perceived view of investments and building a capital reserve to close market failure gaps. He also stated that the measures needed to help mitigate the risks of infrastructure projects depend on the definition of the latter. A distinction between the project itself, along with the cost/revenue associated with it, and the service facility the investment provides is essential to allow for long-term development and revenue generation.

Guan Jianzhong, Chairman of Dagong Global Credit Rating, gave his stance on the western infrastructure rating model, outlining that it is not scientific enough because it only focuses on the regulatory environment and does not sufficiently reflect the particularity of formation of credit risks. The biggest shortcoming of this method is that it puts too much emphasis on cash flows, which is not applicable to new projects as they are lacking in operational histories. The Dagong Model is more holistic because it accounts for three aspects: environment, construction and operation. This includes the ecological sustainability of the project (as well as a visibility research), market demand for it at a given time, the feasibility of the construction phase and the turnaround time when the project is in operation.

There needs to be a local focus, but horizontal coordination across local governments must be encouraged to counter further fragmentation of projects and investment, according to Luiz de Mello, Deputy Director of the Public Governance and Territorial Development Directorate (OECD). The three main issues that need to be discussed further are cooperation and coordination, capacity building, and framework conditions. Coordination is needed in order to pool risk across borrowers on projects that cross borders or municipalities. Capacity building needs to not only identify the needs and the design of the projects, but also needs to be developed for the post-investment phase where assessment of the project is addressed. Investors should identify good governance practices and identify limiting constraints in order to create framework conditions that advance agendas.

The final speaker of the first plenary, Dorah Nteo, Strategic Executive Director: City Sustainability, City of Tshwane, declared that policy consistency and inde-



Dorah Nteo, Strategic Executive Director: City Sustainability, City of Tshwane

pendence of the project trajectory from the electoral cycle is imperative for the sustainability and success of a project. Financial mechanisms and incentives must be in place and insulated from political agendas to encourage targeted investment. The public sector can then harness the first-mover advantage, before passing on opportunities to the private sector to ensure the optimal use of any particular asset (although circumventing national legislation is problematic in some cases). The power of packaging/networking and risk sharing between partners is essential. Stakeholders and other players must be well informed and cooperation maintained to ensure the success of a project.

22 Plenary 2: Instruments for Increasing Capital Flows into Infrastructure

In order to meet future climate change targets such as peak CO₂ emissions, countries need to invest heavily in sustainable infrastructure. However, many of these countries will simply not be able to allocate the amount of funds needed. With this in mind, André Schneider, André Schneider Global Advisory, CEO and VP of the Ecole polytechnique fédérale de Lausanne (EPFL) and GIB Board Member, underlined that we need to look at alternative funding opportunities to meet the challenges ahead.



A packed auditorium during a plenary session

In doing so, we should look to reinforce the capacity of cities and regional governments to raise funds because many projects occur and need to be managed at this level and cannot rely solely on national strategies.

Alex Zhang, Director, Eco Forum Global (EFG) reminded participants of the huge gap between investments and projects – not only in developing countries, but also in developed countries. There is a need to

revamp the existing infrastructure investment model with the help of better leadership and technology. He introduced the audience to two new initiatives in China, the Asia Infrastructure Investment Bank (AIIB) and the Silk Road Fund. The latter is useful for expedited investment as it is easier to negotiate and quicker to implement it as a sovereign fund, but the AIIB is useful for getting funding from an intergovernmental body that focuses on the more developing areas of Asia. The two initiatives work together to foster economic connectivity and to promote common development. However, they face two main challenges: structure of oversight and the regulation standards to be followed. Since both of these initiatives have a different model than other traditional international

monetary organisations, setting up a structure and regulation standards that are acceptable to all members is difficult, especially in terms of environmental issues.

Hinrich Fischer, Executive Director, Head of Energy & Environment Finance Group Infrastructure Finance, Erste Group Bank AG, spoke about the current backlog of funding. The 2008 financial crisis hindered the willingness of banks and capital markets to take market risks, so now they are only interested in investing in projects where cash is available. In order to combat risk averseness, projects need support from politics. It is important to increase the 'bankability' of projects in order to procure investment. To do this, experts with the required know-how must be willing and available to get involved in these projects at an early stage, focusing heavily on good governance to increase the overall bankability.

James Alexander, C40 Cities Climate Leadership Group, announced that the global battle to tackle climate change will be won or lost in the great cities throughout the world. Cities are the most important level of innovation in sustainable infrastructure because they have the political will and ability to invest in the future. However, they are also the most vulnerable to climate change effects. In order to help cities access funds, C40 requires a project preparation facility in order to make bankable projects. It would also be beneficial for cities to have direct access to funds from international agencies and banks without having to go through national governments or engage partners. To reduce costs of capital, cities should be able to raise capital by taking on debt and issuing bonds, as well as by learning how to improve their creditworthiness. In order to reduce investor risk and capital costs, project aggregation is essential for creating a project pipeline that is clear to investors in order to speed up the process. Harmonising standards and transmitting homogeneity across projects, cities and countries is crucial in order to integrate stakeholders.

In the opinion of Chiara von Gunten, Project Manager, Long Finance and Branch Manager Geneva/Switzerland, Z/Yen Group Limited, the most important aspect of financing the transition to sustainable infrastructure is to



Chiara von Gunten, Project Manager, Long Finance and Branch Manager Geneva/Switzerland, Z/Yen Group Limited

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universally define what sustainable infrastructure is, namely, which assets or projects “reduce the environmental impact, improve the ability to cope with climate change and help protect biodiversity and ecosystem service.” Having projects that lack significant preparation, scale and sound governance, prevents investment in sustainable infrastructure projects. This can be improved by developing a ‘productive and marketing approach’ including pipeline development through project planning, recognising and transmitting best practices, as well as creating platforms for communication and co-operation between investors and stakeholders through a global database of projects and financial structures.

23 Plenary 3: Climate Mitigation, Adaptation and Sustainable Infrastructure

Changhua Wu, Greater China Director, The Climate Group, moderated the third and final plenary session of this year’s Summit. She underscored the fact that climate change is probably the most difficult and pressing challenge to urban sustainability in the 21st century. Nevertheless, there is capital available, which could be used in the climate resilience sector to help mitigate risks. This session looked at three case studies from different part of the world to understand the impact of climate change and the need for mitigation and adaptation.

Alejandra Moreno, Authority of the Historical Centre, Mexico City, spoke about the city’s historical district rehabilitation process, which over a period of 10 years has introduced new pedestrian streets, cycle routes, a BRT system, reduced the city’s carbon emissions by 100,000 tons, recovered public space from wasteland, and increased economic growth through job creation and new businesses. The specific new challenges that lie ahead include: creating affordable housing in the centre;



introducing better and more efficient modes of public transportation; and developing a waste to energy disposal plant.

Robert Kehew, Human Settlements Advisor, Urban Environment and Planning Branch of the United Nations Human Settlements Program (UN-HABITAT), highlighted Bus Rapid Transit (BRT) as an important case study for sustainable infrastructure development. BRT is spreading globally in many major cities; provides a solution to transit problems in urban areas; has co-benefits such as reduced travel time and congestion; and reduces overall greenhouse gas emissions. However, projections of revenue for such

Robert Kehew, Human Settlements Advisor, Urban Environment and Planning Branch,
UN-HABITAT

projects are sometimes inaccurate and result in the failure of many such ventures. For any BRT project, the parties involved must take the following steps: 1) Surveys on how the targeted audience will use the suggested projects: multiple micro-level surveys instead of making assumptions based on the macro data available; 2) Scenario Modeling: a service plan that covers all other possible alternatives to the problem being solved, beyond the suggested solution; and 3) A Service Plan, focusing on network design and operation because any changes here will impact revenue projections. Robert closed his presentation by telling the audience about the Cities Climate Finance Leadership Alliance, which counts UN HABITAT, GIB, C40, ICLEI and Meridiam among its members, and aims to mobilise institutional investors & the private sector to channel resources & efforts towards low-carbon, climate resilient infrastructure.

Andrea Burkhardt, Head of Division, Federal Office for the Environment (FOEN) focused on the buildings sector in Switzerland, which is the country's second largest carbon emitter. She stressed that, in order to mitigate against climate change risks, the outdated infrastructure in Switzerland needs to be renovated. In this regard, building renovation and renewable energy sources are being promoted through co-financing of the government and cantons. A CO₂ levy has also been introduced on heating fuels. In order to tackle increased temperatures in cities caused by urban heat island effects city planning must incorporate more fresh air corridors and architecture must take climate change into account by introducing more efficient and or/natural cooling systems.

Sajit Robert Rodrigues, Municipal Commissioner, Corporation of the City of Panaji, India, showcased his city's project to become a landfill-free city by composting wet waste and recycling the remaining waste. But they face some challenges: part of the city is below sea level, and it is smaller than other metropolitan areas in the country so does not receive enough attention and finances. Educating the population and making their way of life more sustainable is difficult because of pre-existing cultural barriers. Efforts made to prepare for the project include educating the population, especially the children in schools and door-to-door collection of trash.



Sajit Robert Rodrigues, Municipal Commissioner, City of Panaji

Bringing the plenary to a close, panelists agreed that cities should look at their risk landscape and invest in the areas that need to be addressed before a catastrophe hits. The sooner cities invest, the sooner they will become resilient, and the cheaper adaptation measures will become in the long run.

3 Investors' Approach to Sustainable Infrastructure: A Capacity Building Session

Following the opening plenary, participants attended a capacity building session led by Kostas Nikolopoulos, Partner, Origination and Structuring, Clean Energy and Infrastructure at Chalkhill Partners LLP. The session aimed to bring investors and project developers together to share useful advice on how to structure a bankable project, how investors approach infrastructure investing, and to offer insights into investors' project selection criteria.

Mr Nikolopoulos kicked off the discussions by emphasising the difference between accessibility and liquidity. It is true that there is currently lots of liquidity in the market, coupled with low interest rates. But this liquidity hasn't been converted into infrastructure due to the lack of bankable projects. In particular, there are still shortages of accessible capital for upgrading infrastructure in OECD economies. The key questions that need to be addressed, therefore, are how can we turn liquidity into accessibility? What are the screening criteria? And what makes a project bankable?

Thierry Déau, CEO at Meridiam, began by pointing out the significant role investors can play in developing the sustainable infrastructure asset class. In this regard, he stressed that focusing purely on financial returns is wrong. Investors need to focus more on providing essential services by identifying social needs in order to deliver more sustainable projects. In doing so, they should focus on increasing the number of Public-Private Partnerships (PPPs), but these need a defined legal and institutional framework, political will, market size, and enough private capital. In order to succeed, a sustainable infrastructure project must have two key components:

- 1) A good contract and working relationship: the people behind a sustainable infrastructure project must be in open dialogue with stakeholders to ensure that it makes sense and is inclusive; and
- 2) It must be pertinent to the community: climate change and the social needs of the community must be incorporated in the early design of a sustainable infrastructure project.



Thierry Déau, CEO, Meridiam

The major issues that lie ahead are how to make the world greener. The UN Climate Change Conference, COP21, in Paris later this year is an excellent opportunity to discuss this topic and move forward together. With this in mind, Meridiam and GIB are producing a handbook on good environmental, social and governance (ESG) practices for investors.

Continuing the discussion, Michael Barben, Co-Head Private Infrastructure at Partners Group, gave participants an insight into what his firm looks for when investing in a sustainable infrastructure project. When approaching the risk profile of an infrastructure project, Partners Group looks at the key risks at the different stages of the project. They avoid getting involved at the development stage, instead focusing on the construction phase and asking questions such as: who will bear the construction costs, what is their credit quality, what security will they provide? They want to invest in projects that are fully funded from the outset. In the operation phase, Partners Group looks for projects that have a long-term off-take agreement with limited exposure to volume and price risk. Infrastructure projects need long term maintenance and investment, which requires a careful assessment of what the long term costs are.



High profile panel during the Investor's Approach Session

Using concrete examples from Australia, Japan and Mexico, Michael demonstrated that there is unfortunately no definitive checklist to decide which types of project Partners Group will invest in. Instead, they take a holistic view of the project risks to establish a contractual

framework where the risks are taken by the best-suited counterparty and the interests of all parties are aligned not just to bring the project to financial close, but also to build it and operate it.

Philippe Valahu, Executive Director of the Private Infrastructure Development Group (PIDG), provided a different perspective on infrastructure development. He mentioned how PIDG pools the resources of several donor organisations with a view to promoting private sector investment in infrastructure in developing countries. There are two key areas of concern for PIDG and its shareholders: demonstration effects, which implies that sustainable contracts cannot be one-sided contracts, and replicability, meaning that such projects should also be able to be successfully implemented elsewhere.

Finally, Gabriel Goldschmidt of the International Financial Corporation (IFC) shared the IFC's approach to providing capital for infrastructure projects in Latin America. From an investor perspective, it is important to consider, both in terms of debt and equity financing, whether the project makes fundamental sense, how the project has come to its present stage, what the key elements regarding risk allocation are, and how stable the project is over the long term. He also emphasised that not only the IFC must be convinced that an investment makes sense. It is vital that other equity holders and lenders for the project also agree regarding a specific project's viability because the amount of capital provided by IFC is typically 2-3 times the original total agreed upon.

4 Workshops

41 Measuring Risks: The Influence of Ratings on the Infrastructure Market and Alternative Risk Mitigation Approaches

When talking about risk management and the role of credit rating agencies, which strongly influence the perception of risk in the infrastructure market, we need to focus on project risks, equity risks as well as credit risks. Daniel Wiener, Chairman of the Board of Global Infrastructure Basel Foundation, opened this session by suggesting that credit ratings should focus both on financial as well as social and environmental risks when assessing infrastructure projects.



Panel discussion debating why projects fail and how to measure sustainability and resilience risks and benefits

In response to the opening question of why infrastructure projects fail, Robin Burnett, Senior Director, Infrastructure Finance Ratings at Standard & Poor's, pointed out that only a small percentage of Standard & Poor's rated infrastructure projects actually do fail. Most of these failures result from project-specific issues such as market exposure, regulatory risk, and catchall factors such as incorrect hedging and cash flow volatility. In contrast, Mark Hoff, Partner, Lead Sustainability & Communication EMEA of Environmental Resources Management (ERM), which provides consultancy work, due diligence and impact assessment studies of infrastructure projects, stated that 50% or more of projects they examine fail, and most of these failures are due to leadership issues, lack of ESG criteria in

the project development phase, and by not actively involving and engaging their stakeholders. A possible explanation for this difference, suggested Mr. Burnett, is that projects which are rated tend to be bigger and better structured, and therefore less likely to fail.

According to Geoffrey Smith, Managing Director, Infrastructure Finance & Advisory, ING, inexperience in project implementation leads to failure because individuals attempt to manage new projects, trying to replicate successful existing projects themselves, without the advice of foreign experts. Ulrich Bierbaum, General Manager, Dagong Europe Credit Rating, went on to state that failure often happens before a project even starts. This is due to the prevalent criteria for funding such projects. In his view, criteria set by the IMF and World Bank are too focused on financial viability. Instead, they should to be more like the Chinese/AIIB model, which focuses more on profitability and long-term benefits for the region involved.



Audience participation during the workshop on measuring risk

When asked about the role ESG will play in the future of credit ratings, Robin Burnett emphasized that ESG is not directly mentioned in S&P's rating system. They have not found a direct link between why a project fails and ESG criteria. This doesn't mean that ESG isn't present, but S&G currently don't ask the tough (social) questions explicitly. In this regard, Mark Hoff argued that ESG criteria can be linked to financial failure,

but training is required in order to assess and recognize the link. We need to develop a system/tool in order to make the links with ESG criteria and financial failure more transparent. Geoffrey Smith felt that ESG criteria would soon become part of project assessment because of investors' interests and legislation brought about by inherent cultural change. He admitted that it is currently hard to draw an academic/technical link between ESG criteria and financial failure, but that they are indeed interconnected.

As regards the future role of resilience to natural and man-made risks in credit ratings, Robin Burnett underlined that natural catastrophes are an emerging risk as their frequency is increasing over time. While this is usually covered by insurance and is simply a project cost to at present, it is not included in the ratings today because it is manageable. In the future, the availability and affordability of insur-

ance might decrease due to the emerging risk - consequently, corporations will have to look ahead and calculate their increased exposure or they will have to accept this as a vulnerability/cost.

Ulrich Bierbaum argued that taking resilience into account comes at a price due to the collateral that has to be put behind it. Rating agencies that want to be of value to investors should take long-term climate change into account. Bad risks in infrastructure should be taken on by the public sector, because in the long term they will also become good risks. Those with the capacity to take on good risks should be left to private investors, who are willing to take a bet on investments. The European Central Bank should not have such a strong presence and instead should discipline the private sector to manage the market.

Wrapping up the workshop, Daniel Wiener concluded that sustainable business is better business, and sustainability plays a definite role in credit ratings. Different credit rating agencies have different focuses and different approaches, but sustainability undoubtedly has an upside potential in that it can improve the quality of a credit.

42 Why are Sustainable Infrastructure Projects so Difficult to Structure?

Oshani Perera, Director, Public Procurement and Infrastructure Finance, International Institute for Sustainable Development (IISD) kicked off this interactive workshop by highlighting the large numbers of investors who say they are ready to finance green deals, and the many governments with projects that need financing. But despite this fact, there is still a lack of investment in sustainable infrastructure. The gap between these stakeholders often lies not just in the revenue risk, but also in the bad structuring of green deals.

For Zoran Jelic (ZJ), EU Project Coordinator for C.R.E.A.M. Europe PPP Alliance, the mindset of governments is the main problem for project development. Complex project development requires transparency and a holistic approach, integrating all stakeholders from the beginning. As regards what makes a project bankable, the main point to consider is lifecycle risk management. On the public side, there



Oshani Perera, Director, Public Procurement and Infrastructure Finance, International Institute for Sustainable Development (IISD)

is no awareness of risk. From the very beginning, transparent risk margins are therefore needed. Different risks must be shared between public and private players, such as land acquisition risks, construction risks, market risks, etc.

In order to make a project bankable, Anouche Karaman, Marketing Director, White Capital Advisors Limited, pointed out that many project proposals are poorly structured, with no business plan and no executive summary, poor language and layout, and too many intermediaries. Regarding the development stage, White Capital often receives deals that are not ready at all, even though developers consider them to be ready. To help structure projects to make them bankable for investors, Marcial Bustinduy of the European Bank for Reconstruction and Development (EBRD) shared that the EBRD provides capacity building to help project developers manage and prepare contracts. It also helps municipalities develop public service contracts and supports governments in order to prepare an appropriate legal environment.

With specific reference to the technical risks involved in projects, Zoran Jelic said that there are two ways of addressing technical risks. One is through advice: we need to make deep PPP market research, presenting the project to people and asking them what they think of it. This will help minimize risks of project preparation.



Many productive discussions were had between meetings through networking opportunities

The second way is by tendering projects in a life cycle. In this regard, Oshani Perera underlined that PPPs are not a financing tool, they are about efficiency and political decisions. You want those who have the capacity to hold certain risks to hold them (operational, financing risks). The government holds legal, political risks. The view today is that all risks should be shared between public and non-public counterparts.

Jan van Schoonhoven, Special Advisor on Infrastructure and PPP at the Dutch Ministry of Infrastructure and the Environment, illustrated the difference between budget and value for money by emphasizing that we often only know what is in the budget of a project. However, there are often hid-

den extra costs, for example energy costs linked to the operation of the infrastructure that aren't part of the project budget. It is therefore important not to focus purely on the budget, but rather on the value for money of a project.

On the subject of Islamic players entering sustainable infrastructure, Anouche Karaman mentioned that the issuance of Sukuk, the Islamic equivalent of bonds, has increased by USD 20 billion since 2000. She explained that no interest is paid on Sukuk. Instead, the share of profits is derived from assets, which is ideal for infrastructure projects. The demand for Sukuk is rising as investors look to diversify their portfolios.

Closing the workshop, Oshani Perera reiterated that unless we get green deals that are correctly structured, we cannot get investment for them; and unless we de-risk, we are unable to get to that stage. Only now, 25 to 30 years into the development of sustainable infrastructure, do we begin to address these questions.

43 Increasing the Efficiency of Sustainable Infrastructure

Florian Nussbaumer, COO of Swiss Cleantech, first introduced the speakers of this workshop before handing over to Zhai Changsheng, Vice-Mayor of Dezhou City, China, who shared some of the many



Audience members had opportunities to ask questions and comment on sessions

sustainable infrastructure projects that have been implemented in his city since the 1990s. He spoke about the introduction of massive solar projects (solar water heaters covering 3 million square metres and photovoltaic panels covering over 1 million square metres), biomass power plants, heat pumps and low energy public transportation. In the next 5 years, Dezhou's new energy industry predicts to have total sales revenues in excess of USD 30 billion. To ensure the efficiency of this sustainable infrastructure, Dezhou adopts a unified planning process involving industry development planning, construction planning and application planning.

Ulrich Hinterberger, Head Infrastructure, Consultant Latin America, Switzerland Global Enterprise, shared his view on the current challenges we are faced with: project owners and investors are ready and available, but lack of technological know-how is preventing investments. Focusing on the risk

reduction through this know-how and technological progress, Michael Gruenenfelder, Regional Director Europe & New Markets Thermal Power Global Competence Line, Pöyry Switzerland AG, argued that technology has actually introduced a lot of risk via carbon based energy exploitation during the industrial revolution. To tackle these risks, we need to introduce more technology. With this in mind, Pöyry, which is mainly active in the sun-belt countries, is shifting its focus away from thermal to new energies. Some of the options currently being explored include a zero energy mill fuelled by residue from the milling process, as well as a floating photovoltaic power plant.

Jan-Henrik Kuhlmann, Investment Manager and Partner, responsible for Asia and Cleantech, Obviam AG first explained Obviam's mandate, which is linked to poverty reduction. They support SMEs in emerging markets to become growth engines, create jobs and become the sustainable backbone for large companies. Obviam does not need to maximise returns: sustainability is the key factor. When selecting which projects to fund, they use 43 indicators to assess the development impact of the individual projects in question. The main driver is job creation, but also developing the financial market is key. Mr Kuhlmann sees the inclusion of ESG criteria as an effective way for projects to mitigate risk. In this regard, it is important that employees who will be involved in a project will have proper contracts, insurance, and a safe working environment.

Florian Nussbaumer asked panellists about the role the legal framework of a country helps to increase the efficiency of sustainable infrastructure. In response, Michael Gruenenfelder used the example of the *Energiewende* in Germany, which created a critically sized market for photovoltaic projects and started the move towards commercialisation. This was only due to an act of government, based on environmental targets rather than profit targets. In this regard, the regulatory environment is key. It must remain transparent and consistent to attract investors. Now is the moment to use the liquidity to build sustainable infrastructure. Every penny not spent on sustainable infrastructure is a penny down the drain.

44 What is the Role of the Public and Private Sector in Terms of Implementing Equitable and Sustainable Transit-Oriented Development

Many cities throughout the world are keen to do much more in the field of transit-oriented development (TOD). Simon Kjaer Hansen, Director of Regions at C40, moderated this workshop, which sought to identify the benefits of TOD and discuss ways that the public and private sector can work together to finance such projects. He began by noting two things about TOD: 1) it is very much about the long term, and 2) there are often very complex relationships between the many different partners – land owners (public & private), transportation companies (public & private), developers, etc. How to get financing for such projects is complicated. Bearing in mind the large number of transit-

oriented projects being presented at this year's summit, the discussions during this workshop were particularly relevant.



Colin K. Hughes, Director of National Policy & Project Evaluation, Institute for Transportation & Development Policy (ITDP)

Colin K. Hughes, Director of National Policy & Project Evaluation, Institute for Transportation & Development Policy (ITDP), told the audience why we need increased investment in TOD: to create more sustainable cities and ensure increased economic stability. In many of the countries in which ITDP works, cities often either mismanage land use, or have the wrong type of planning. Lack of investment in transportation infrastructure results in a loss of opportunity to harness value and capture growth. The shape of the cities we build determines the transport we use, and the transport we use shapes our cities. Mr Hughes underlined that the liquidity for such TOD projects is available, but there needs to be a shift in where finances are invested. And in order to shift the invest-

ment, cities need to shift their land use priorities. In terms of public sector involvement, smart government is needed. There needs to be a city vision, good negotiators, commitment to the long haul, and public investment. The private sector's role in TOD is to engage local communities, business and investment communities and articulate needs, and to align and support public goals.

Sharing the perspective of the European Bank for Reconstruction and Development (EBRD), Marcial Bustinduy Navas, Principal Sustainable Transport Specialist at the EBRD, outlined the existing barriers to financing TOD, including the lack of well-prepared projects, non-transparent/inadequate legal and regulatory frameworks, changeable policy environments, and limited government capacity. To help overcome these barriers, private investors must be provided with jargon free, well-drafted proposals.

Cedric S. Grant, Executive Director of Sewerage and Water, City of New Orleans spoke about the success of the New Orleans multimodal transit system, which consists of 146 buses, 66 streetcars and 61 paratransit vehicles. The system was completely destroyed by hurricane Katrina in 2005, which created an opportunity to rebuild the transport network with a much greater focus on resilience to future natural disasters. The subsequent improvement and expansion of the transit system has seen a 62% rise in passengers since 2009. As part of this development, the city focused on TOD surrounding

the newly created transit corridors. A total of 70 projects have been developed including supermarkets, apartments, hospitals and hotels.

The final speaker during this workshop was Fernando Gonzales, Director, Corredor Verde, GIP Pacifico. He described the Corredor Verde project in Cali, Colombia that will redevelop a disused railway line to create 22km of bike infrastructure, over 1 million square metres of public space and a tramway system. The project will significantly reduce traffic congestion, reduce carbon emissions, and increase social and cultural cohesion. As part of the development process, Global Infrastructure Basel Foundation helped the city of Cali to design an umbrella concept and an implementation plan considering sustainable development factors and based on customer needs.

During the discussions, which followed the presentation, Simon Hansen emphasised that the main concern regarding TOD is how to raise sufficient funding. In response, the panellists outlined that, from an investor perspective, how to mitigate risk is the most important factor when choosing to support a TOD project. To do this, we need to know the development market, the types of transit, the construction costs per km and the cash spent on each km of transit.

Such information is key to preparing and ensuring stable cash flows and clear allocation of funding, which in turn will help leverage private sector investment.



Timothy Geer, Director,
Public Sector Partnerships,
WWF International

45 Making the Infrastructure Asset Class more Sustainable

Matthieu Muzumdar, Investors Relation Director at Meridiam, introduced this workshop by declaring that the infrastructure asset class is a target type of investment that institutional investors are ready to invest in. Today, infrastructure investment represents 1% of the total assets investors manage. They are ready to invest up to 3% of their assets in infrastructure, which represents USD 2 trillion. So the financing is there if conditions are right and projects are correctly aligned.

John Campbell, Chairman, Campbell Lutyens, began discussions by highlighting the key drivers for institutional investors to invest in infrastructure. In a world in which institutions are desperately in need of yields and future, predictable income, sustainable infrastructure and its associated benefits have a key roles to play. As we create new methods to intermediate institutional capital, the doors will swing open wider to new investments in this asset class. He went on to emphasise that equity is not just equity, and infrastructure is not just infrastructure. They suppose many different things, with

different risks involved. There are existing and new assets, and anyone with capital can buy utility, but it is harder to maintain it. We need bigger knowledge and research on new assets.



Palash Srivastava, Director PPPI & Programs, Infrastructure Finance Company (IDFC)

Palash Srivastava, Director PPPI & Programmes, Infrastructure Finance Company (IDFC), said that in order to make projects investable we have to create a pipeline of bankable projects without delay. With this in mind, IDFC spends a lot of time working with government institutions to standardise documents, which is an important issue because governments are averse to entering into innovative frameworks.

With regards to equity, Sybille Grandgeorge of Natixis Debt Finance told the audience that her firm has developed a rating tool to assess the sustainability characteristics of their investments. With regards to debt, they identify and mitigate the potential negative impacts of infrastructure based on the Equator Principles. When structuring projects, Natixis ensures that there is engagement with the community, a high level of safety and so on, in line with the aforementioned principles. However, she pointed out, using these indicators in non OECD countries is not feasible due to low standards of local regulation.

Barbara Weber, Founding Partner, B Capital Partners AG, went on to say that the overall attention to sustainability and ESG is still frustratingly low. The real engagement is very low, but there are noticeable changes. From the investor side, B Capital Partners AG has rejected several projects which involved military assets, for instance. This points to the fact that people are taking these things into consideration. Albeit slow, there is a positive development towards sustainability.



Cassagne Vincent, Delphine Riou, and Sybille Grandgeorge, Natixis of Groupe BPCE

As regards ESG principles, Matthieu Muzumdar shared the general belief that you cannot be an investor in infrastructure projects without believing in ESG principles. The main reasons ESG principles are not incorporated are due to the lack of reliable industry data. To ensure that ESG principles are incorporated into investment decisions, Barbara Weber said that there is a real need to develop the right benchmark for the right investor strategy. This process will be difficult and there cannot be just

one benchmark. The benchmark created for private equity infrastructure cannot, for example, fit the benchmark for bond type infrastructure. We cannot have a 'one size fits all' approach and we need to differentiate by industry. Palash Srivastava reiterated that there is a clear lack of a set methodology to assess the ESG of infrastructure projects, which needs to be addressed as soon as possible.

Wrapping up the panel discussions, Matthieu Muzumdar spoke about a group of long term institutional investors, that is focusing on two things: 1) measuring the financial performance of infrastructure assets and 2) better ESG integration. Meridiam is working together with GIB to build the right benchmarks and performance measures with a view to ultimately tying these to financial performance. The first output from this cooperation should be available in the upcoming months.

46 Solid Standards and Ratings for Project Financers and Designers

This workshop sought to discuss solid standards and ratings in order to certify projects. The difference between ratings and standards is that ratings use a checklist of criteria that must be met, while standards are more open and lenient. The financial rating is dependent on this, but there is need for improvement because there are under 10 systems of rating in the infrastructure field.



Francois Baillon, Commercial Director of the International Federation of Consulting Engineers (FIDIC)

Francois Baillon, Commercial Director, International Federation of Consulting Engineers (FIDIC)

told participants that FIDIC are one of the leaders in promoting guidelines for sustainability and sharing knowledge of best practices. The FIDIC rating system emphasizes the importance of civil society and stakeholder involvement. This starts from the very beginning, even before choosing a project, as choosing the right team for a project is essential. To ensure credibility of projects being assessed using the FIDIC system, it is important that they are reviewed by a 3rd party such as local NGOs, so that they can validate and control the process.

Maren Kornmann, Project Manager, Energiestadt, stated that her company evaluates projects based on a method that comes from the top down and the bottom up, simultaneously. Energiestadt takes the top down approach as it focuses on cities and is a long-term standards method. This system helps cities set goals and realize their strengths and weaknesses, while encouraging them to pursue more projects after their first successful one. The 2000-Watt is a city to site program that evaluates the operation and planning of projects at specific sites within a city. This is a novelty because it is a top

down, bottom up approach and has an internal and external review system that focuses on the short term as well as the long term (making it holistic in a way different from all other rating systems). The company believes that this makes it flexible and adaptable enough to transport to other parts of the world, not just Europe.

Zhang Ruijie, Secretary General at Low Carbon Economy Committee (CAPEC), gave his opinion and perspective from an industry viewpoint instead from a national government viewpoint because the issues are highly technical and demand high levels of quality. Their standard system is based on a double assessment - a pre and a post project assessment. During the pre assessment, planning is considered in order to create a reference for investors which focuses on ESG criteria as well as technology, processing, and production. The post assessment focuses more on the operation and management of the process such as manufacturing, while still keeping ESG criteria in mind.



Zhang Ruijie, Secretary General, Low Carbon Economy Committee (CAPEC)



Participants sharing experiences and ideas during coffee breaks

Katharina Schneider-Roos, Deputy Executive Director, Global Infrastructure Basel (GIB) began by explaining that GIB is the leader in creating a worldwide standard and rating method that focuses on resiliency and sustainability, the SuRe Standard for Sustainable and Resilient Infrastructure. GIB takes advantage of investors who are under pressure to invest in more sustainable projects and is focusing on bridging the finance gap by developing a common understanding and language for stakeholders. The SuRe Standard takes a holistic, global approach that focuses on many different criteria for grading. It is different because it caters to the different needs of the investors.

Delphine Riou, SRI Analyst within the Global Markets Research Department, Natixis, outlined that the SRI rating method focuses on pushing for standards that lead to responsible assets, like a project that is socially responsible. The SRI work complements the Equator Principles that require due diligence before any project is started. This is different from other rating systems as it focuses not only on risks of investments, but also on the benefits created by the project.

Based on this system of evaluating positives and negatives, they set benchmarks in order to meet standards that will add the most to societal value.

Andreas Georgoulas, Research Director, Zofnass Program for Sustainable Infrastructure, spoke about the ENVISION rating system, which was developed with Harvard University and is a part of the Zofnass Program, which is unique for its support by an industrial alliance. This rating system is easily accessible as it is free, online and manual. Nevertheless, it is still legitimate as there is an optional third party verification, which creates a very transparent system. The system is holistic and not heavily reliant on economic variables as the categories that projects are scored on are: quality of life, leadership, resource allocation, natural world, and climate & risk. Economic costs are taken into consideration through cash and non-cash benefits (such as corporate image, stakeholder approval, education and biodiversity).

47 Closing the Financial Gap in Urban Resilient Infrastructure

Daniel Magallon, CEO, Base Energy Foundation, began this workshop by offering a definition: Resilient cities have the ability to absorb sudden shock and operate appropriately even if some parts of the system fail.

Oren Ahoobim, Dalberg Global Development Advisors, Associate Partner stressed that the goal should not be to build resilient infrastructure. Instead, we should aim to build infrastructure that enhances urban resilience, which can in turn generate multiple co-benefits for the city in question. It is difficult to fully measure the broader value or co-benefits because it is difficult to quantify (resilience) linkages across different urban systems. In this respect, we need better tools to measure positive and negative resilience linkages. Finally, if we can better measure these valuable externalities/co-benefits, we can unlock new sources of funding to pay for more and better infrastructure. In Mr Ahoobim's view, we should not only focus on resilience to climate change and severe weather events. Addressing the range of economic and social shocks and stresses cities face (poverty/inequality, lack of available housing, high crime etc.) is also critical.

Emphasising that resilience should not only be structural, David Bresch, Head Sustainability & Political Risk Management at Swiss Re added that resilience must also be integrative – by working with local communities in a wider sense, as well as transformative so that resilience is an element of urban development. This is where Swiss Re uses insurance as a tool to increase resilience in a transformative sense. Climate-resilient development needs to assess and address total climate risks. In this regard, Swiss re adopted the Economics of Climate Adaptation (ECA) methodology, which first assesses the sum of: today's climate risk; the economic development paths that may put the greater population and value at risk; and the additional risks presented by climate change. Second, the ECA

proposes and prioritises a basket of adaptation measures to address total climate risk on an economic basis.

Focusing on Private Public Partnership to shape climate resilient development, David underlined that the custodians of economies need to prioritize adaptation measures to make societies more resilient to the impacts of climate change. The ECA methodology provides decision makers with the facts to systematically identify cost effective investments and allows decision-makers to integrate adaptation with economic development and sustainable growth.

Yunus Arikan, Head of Global Policy and Advocacy, Local Governments for Sustainability (ICLEI) shared with the audience the Transformative Actions Program (TAP), which has been developed in collaboration with networks of local and subnational governments (ICLEI, R20, UCLG, C40, Eurocities, CEMR...) together with the members of the Cities Climate Finance Leadership Alliance (CCFLA) (e.g. AFD, GIB, WWF, GEF, WB) and other institutions. TAP was launched and is managed by ICLEI – Local Governments for Sustainability and will be presented at the UN Climate Change Conference, COP21, in Paris later this year. It aims, inter alia, to support climate investment in urban areas over the next ten years, increase the quality and scope of local and regional climate action, create support mechanisms to assist cities and regions in designing bankable and transformative projects, contribute to the



Martin Shenton, Economic Development
and Cooperation
State Secretariat for Economic Affairs (SECO)

elaboration of new finance mechanisms for local and regional climate action, create trust among sub national governments, financing institutions and investors, lower the current perception of risk, and support regular monitoring and reporting of project implementation developments.

TAP consists of three key entities: a multi-disciplinary project team responsible for day-to-day coordination and implementation, a management committee composed of core TAP Management and advisors, and the TAP Project Selection Panel, comprised of representa-

tives of local and regional government networks, funding institutions, development banks, development institutions, and others. It is responsible for the selection of up to 100 TAP projects/action plans for 2015 that are looking for climate finance.

5 Conclusions and Findings



Toast to a successful Summit

The 5th GIB Summit was able to draw successfully on the conclusions reached at last year's Summit and focus on ways to turn the current momentum into a real and lasting impact. Daniel Wiener, Chairman of the Board of Global Infrastructure Basel was particularly pleased to see that rating agencies are starting to focus on risks concerning environmental and social aspects and even develop new rating systems.

There are different approaches to measuring and quantifying sustainability. Therefore, it is important for stakeholders to agree on a common denominator. Sustainability is an ever-evolving topic and it is vital to learn from each other in order to continuously improve and develop. It is important for project trajectories to be independent of political cycles, and for investors to focus on projects that seek to make a fundamental change, not just produce financial returns. We must look at the positive social and environmental impact of sustainable infrastructure on local economies. This will also trigger positive effects for job creation, wealth, higher standards of living and, ultimately, higher returns for the investor.

The discussions throughout the Summit confirmed that the financial industry is interested in investing in sustainable infrastructure. Now it is up to the stakeholders to come together and coordinate efforts to harness the current momentum in order to strengthen capacities on the ground to create sustainable, bankable infrastructure projects. In cities in particular, there is huge potential to invest in sustainable and resilient infrastructure projects. Rapid urban growth and the resulting negative effects on climate change have confirmed the need for strengthening collaboration with networks such as C40 and ICLEI.

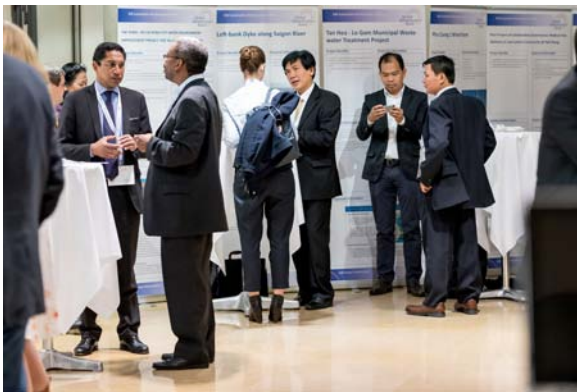


Daniel Wiener, Chairman of the Board, GIB, giving the closing speech

But increased collaboration is not enough. There is also a real and urgent need for clearer rules and regulations. The upcoming negotiations at the UN Climate Change Conference COP21 will focus on creating binding international regulations on sustainable development, financing as well as measures against climate change. The discussions and conclusions during the 5th Summit have set the tone for these negotiations, and provide a strong case for sustainable and resilient infrastructure to become

the backbone of sustainable development, and the solution for a brighter and safer future for the whole world.

6 Infrastructure Project Presentations



Poster presentations and discussions

A total number of 47 infrastructure projects from around the world were presented to 30 investors during a dedicated session on the first day of the Summit. The projects ranged from USD 0.6 million to USD 800 million, covered a wide range of different fields, and spanned five continents. A total of 6 projects were presented from Europe, 11 from the Americas, 15 from Asia and 15 from Africa. This year, all projects were presented in poster format, allowing all investors to see the project information at a

glance and talk to the developers of the projects they were interested in. For detailed information on the projects, please see section 9 of this report.

7 Summit Highlights

71 The GIB App and Matchmaking Platform

The 5th GIB Summit saw the introduction of a new tool: the GIB summit app, which allowed participants to gain easy access to the summit programme, the speaker bios, infrastructure projects and the matchmaking platform, which was again offered to participants following its great success at the

4th GIB Summit last year. This year a total of 192 participants used the matchmaking platform and 220 bilateral meetings were scheduled during the summit, an increase from last year's summit and confirmation that the platform continues to be a great success.



Matchmaking platform, bilateral meetings

72 Increasing Cooperation: GIB signs SLA with Tshwane



Hans-Peter Egler, CEO, Global Infrastructure Basel, and Dorah Nteo, Head Office of Executive Mayor, City of Tshwane

Following on from the signing of their Memorandum of Understanding at last year's Summit, Global Infrastructure Basel Foundation and the City of Tshwane, South Africa, decided to increase their cooperation by signing a Service Level Agreement at this year's Summit. The latter concerns the large scale implementation of off-grid photovoltaic systems, which will begin with a pre-feasibility study, then a feasibility study, and finally the large scale implementation of the project.

73 Turning momentum into impact: GIB signs MoU with FMDV

Also at this year's Summit, the CEO of Global Infrastructure Basel, Hans-Peter Egler, and the Executive Director of FMDV (Global Fund for Cities' Development), Jean-François Habeau, signed a Memorandum of Understanding to bring the organisations closer together with a view to providing joint services to their members.

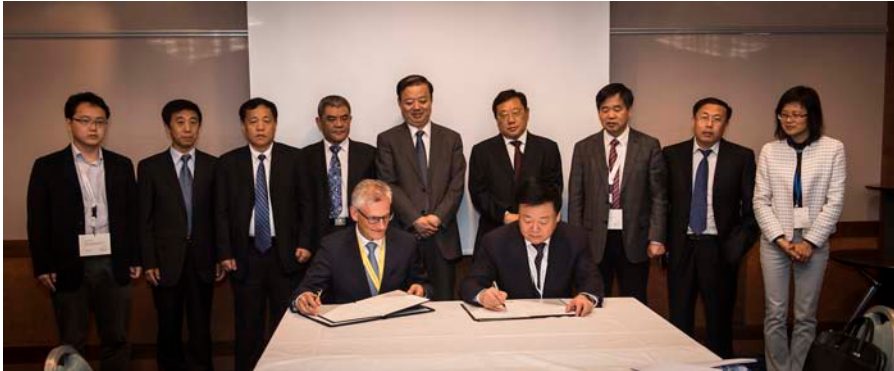


Hans-Peter Egler, CEO, Global Infrastructure Basel, and Jean-François Habeau, Executive Director, Global Fund for Cities' Development

As well as catering to the joint objectives of FMDV and GIB, the MOU will support FMDV members in their urban programmes by giving them exclusive access to GIB's partner network. It will also allow partners of the GIB Foundation to identify and understand the needs of the FMDV member cities in terms of developing urban services and infrastructure funding.

74 Combining know-how: GIB signs MoU with Dagong Global Credit Rating

With a view to promoting sustainable infrastructure financing on the global scale, Global Infrastructure Basel Foundation was delighted to sign a Memorandum of Understanding with Dagong Global Credit Rating. Both parties agree that they should combine their strengths and complement their expertise by cooperating on the establishment of a joint sustainable infrastructure standard and rat-



Hans-Peter Egler and Joy Yong, Global Infrastructure Basel, sign MoU with Dagong Global Credit Rating

ing methodology. The GIB Foundation will provide the Sustainability and Resilience Standard (SuRe Standard); Dagong Global Credit Rating Co., Ltd is to provide their Innovative Sustainable Infrastructure Rating Model.

8 Detailed Programme

81 Wednesday, 27 May 2015: GIB Summit Day One

Time	Session
	<p>OPENING POLICY PLENARY:</p> <p>Welcome Words <i>Dr. Guy Morin, Mayor of Basel</i> <i>Bruno Oberle, Director, Swiss Federal Office for the Environment (FOEN), Switzerland</i></p> <p>Enabling Stakeholders to Capitalise on the Current Market Situation to Increase Investment in Sustainable Infrastructure</p> <ul style="list-style-type: none"> • What kind of policy measures and innovative approaches need to be implemented to make liquidity accessible for sustainable infrastructure projects? • What (new) instruments can help to hedge uncertainties caused by country risks? • Which measures need to be established to help mitigate the risks of infrastructure projects? • How does the current economic situation affect the accomplishment of the Sustainable Development Goals? <p>Moderator: <i>Hans-Peter Egler, CEO, GIB Foundation</i></p> <p>Speakers: <i>Jordan Schwartz, Head of the Global Infrastructure Facility (GIF), the World Bank Group</i> <i>GUAN Jianzhong, Chairman, Dagong Global Credit Rating</i> <i>Luiz de Mello, Deputy Director of the Public Governance and Territorial Development Directorate, OECD</i></p>
08:30-10:30	<i>Dorah Nteo, Head in the Office of the Executive Mayor, City of Tshwane</i>
10:30-11:00	Coffee Break
	<p>Investors' Approach to Sustainable Infrastructure</p> <ul style="list-style-type: none"> • Investors' advice on how to structure a bankable project • Individual investors' approach to infrastructure investing • Insights into investors' project selection criteria <p>Moderator: <i>Kostas Nikolopoulos, Partner, Origination and Structuring, Clean Energy and Infrastructure at Chalkhill Partners LLP</i></p> <p>Speakers: <i>Thierry Déau, CEO, Meridiam</i></p>
11:00-12:15	<i>Philippe Valahu, Executive Director, Private Infrastructure Development Group (PIDG)</i>

Time	Session
	<p><i>Gabriel Goldschmidt</i>, Head for Infrastructure in Latin America and the Caribbean, International Finance Cooperation</p> <p><i>Michael Barben</i>, Co-Head Private Infrastructure and Partner, Partners Group</p>
12:15-12:45	<p>Infrastructure Project Presentations</p> <p><i>Room: Foyer 2</i></p>
12:45-14:00	Lunch Break
14:00-15:30	<p>Measuring Risks: The Influence of Ratings on the Infrastructure Market and alternative risk mitigation approaches</p> <ul style="list-style-type: none"> • Credit risk factors and why projects fail • How to measure sustainability and resilience risks and benefits • Increasing institutional investors participation through credit ratings • Building long-term market confidence and attracting infrastructure investments <p>Moderator: <i>Daniel Wiener</i>, Chairman of the Board, Global Infrastructure Basel (GIB) Foundation</p> <p>Speakers <i>Ulrich Bierbaum</i>, General Manager, Dagong Europe Credit Rating <i>Robin Burnett</i>, Senior Director, Infrastructure Finance Ratings at Standard & Poor's <i>Geoffrey Smith</i>, Managing Director, Infrastructure Finance & Advisory, ING <i>Mark Hoff</i>, Partner, Lead Sustainability & Communication EMEA, Environmental Resources Management (ERM)</p> <p>Why are Sustainable Infrastructure Projects so difficult to structure?</p> <p>Co-Hosted by IISD</p> <ul style="list-style-type: none"> • Challenges arise when assessing bankability based on demand forecasts of user charges, availability payments and ancillary revenues that stretch 10 to 20 years into the future. Should projects be structured on short-timeframes? What other strategies can be used to bring additional predictability? • Is the optimal allocation of risks to parties that are most suited to assume them, more an art than a science? • Is green, climate resilient infrastructure always more expensive during the project development, procurement, and design and construction phases? How does this make deal structuring more complex? <p>This session will deepen the debate on the technology, operation and revenue risks associated with</p>

Time	Session
	<p>sustainable infrastructure as well as the types of credit enhancement that will be needed to make sustainable infrastructure projects easier to structure.</p> <p>Moderator <i>Oshani Perera</i>, Director, Public Procurement and Infrastructure Finance, International Institute for Sustainable Development (IISD)</p> <p>Speakers <i>Jan van Schoonhoven</i>, Special Advisor on Infrastructure and PPP, Ministry of Transport Netherlands <i>Anouche Karaman</i>, Marketing Director, White Capital Advisors Limited <i>Marcial Bustinduy</i>, Principal Sustainable Transport Specialist, European Bank for Reconstruction and Development <i>Zoran Jelic</i>, EU Project Co-ordinator, Europe PPP Alliance and Political Organization Specialist, C.R.E.A.M.</p>
15:30-16:15	Networking Break
16:15-17:30	<p>Increasing the efficiency of Sustainable Infrastructure</p> <p>How to achieve:</p> <ul style="list-style-type: none"> • Risk reduction through know-how and technological progress • Competitiveness through scale • Scale through the right regulatory framework & innovation • How can sustainable infrastructure contribute to the positive development of the growing middle-class? <p>Moderator: <i>Florian Nussbaumer</i>, COO, Swiss Cleantech</p> <p>Speakers <i>Zhai Changsheng</i>, Vice-Mayor of Dezhou City, China <i>Ulrich Hinterberger</i>, Head Infrastructure, Consultant Latin America, Switzerland Global Enterprise (S-GE) <i>Michael Gruenenfelder</i>, Regional Director Europe & New Markets Thermal Power Global Competence Line, Pöyry Switzerland AG <i>Jan-Henrik Kuhlmann</i>, Investment Manager and Partner, responsible for Asia and Cleantech, Obviam AG</p>
18:00–end	Flying Dinner at Osteria Acqua (participants must register separately)

82 Thursday, 28 May 2015: GIB Summit Day Two

Time	Session
09:00-10:15	<p>PLENARY 2 Instruments for increasing capital flows into infrastructure</p> <ul style="list-style-type: none"> • New global instruments/institutions initiated by China • Erste Group approach on fostering infrastructure finance in Central Europe • C40 Creditworthiness lessons – Emerging instruments to help finance flow at subnational level • Financing the transition: Sustainable infrastructure in cities <p>Moderator: <i>André Schneider</i>, André Schneider Global Advisory, CEO and Vice-President EPFL</p> <p>Speakers: <i>Alex Zhang</i>, Director, Eco Forum Global <i>Hinrich Fischer</i>, Executive Director, Head of Energy & Environment Finance Group Infrastructure Finance, Erste Group Bank AG <i>James Alexander</i>, Head, Finance and Economic Development Initiative, C40 <i>Chiara von Gunten</i>, Project Manager Long Finance and Branch Manager Geneva/Switzerland, Z/Yen Group Limited</p>
10:15-10:45	Coffee Break
10:45-12:15	<p>What is the role of the public and private sector in terms of implementing equitable and sustainable Transit Oriented Development?</p> <p>Co-Hosted by C40</p> <ul style="list-style-type: none"> • What is the benefit for society, environment and economy from well-planned Transit Oriented Development? • How can Transit Oriented Development be financed better? • The importance of measuring impact with simple and commonly understandable assessments <p>Moderator: <i>Simon Kjaer Hansen</i>, Director of Regions, C40</p> <p>Speakers: <i>Colin K. Hughes</i>, Director of National Policy & Project Evaluation, Institute for Transportation & Development Policy (ITDP) <i>Marcial Bustinduy Navas</i>, Principal Sustainable Transport Specialist, EBRD <i>Fernando Gonzales</i>, Director, Corredor Verde, GIP Pacifico <i>Cedric S. Grant</i>, Executive Director of Sewerage and Water, City of New Orleans</p> <p>Making the Infrastructure Asset Class more Sustainable</p> <ul style="list-style-type: none"> • How to measure and benchmark infrastructure projects in an asset class • Key indicators to measure sustainability and to demonstrate performance differences

Time	Session
	<ul style="list-style-type: none"> • Sustainable infrastructure as best in class <p>Moderator: <i>Matthieu Muzumdar</i>, Investors Relation Director, Meridiam</p> <p>Speakers: <i>Barbara Weber</i>, Founding Partner, B Capital Partners AG <i>Anne-Christine Champion</i>, Global Head of Infrastructure & Projects, Natixis <i>Palash Srivastava</i>, Director PPPI & Programmes, IDFC <i>John Campbell</i>, Chairman, Campbell Lutyens</p>
12:15–13:30	Lunch Break
13:30–14:45	<p>PLENARY 3 Climate Mitigation, Adaptation and Sustainable Infrastructure</p> <ul style="list-style-type: none"> • How to apply the co-benefits approach to sustainable infrastructure • Increasing the flow of investment capital for low-carbon and climate-resilient infrastructure <p>Moderator: <i>Changhua Wu</i>, Greater China Director, The Climate Group</p> <p>Speakers: <i>Alejandra Moreno</i>, Authority of the Historical Center, Mexico City <i>Robert Kehew</i>, Human Settlements Advisor, Urban Environment and Planning Branch of the United Nations Human Settlements Programme (UN-HABITAT) <i>Andrea Burkhardt</i>, Head of Division, Federal Office for the Environment FOEN <i>Sanjit Rodrigues</i>, Commissioner, Municipal Corporation of Panaji</p>
14:45–15:10	Coffee Break
15:10–16:40	<p>Solid Standards and Ratings for Project Financers and Designers</p> <ul style="list-style-type: none"> • How does one monitor, report and verify sustainability in different circumstances? • How can voluntary sustainability and/or technical standards provide a useful tool for financial institutions • How can ratings and standards evaluate a project’s capacity to adjust to a changing context? • How can we define a continuous approach? <p>Moderator <i>Peter Boswell</i>, Former Director, FIDIC</p> <p>Speakers <i>François Baillon</i>, Commercial Director, FIDIC</p>

Time	Session
	<p><i>Maren Kornmann</i>, Project Manager, Energiestadt <i>Zhang Ruijie</i>, Secretary General at Low Carbon Economy Committee, CAPEC <i>Delphine Riou</i>, SRI Analyst within Global Markets Research department, Natixis <i>Katharina Schneider-Roos</i>, Deputy Executive Director, Global Infrastructure Basel <i>Andreas Georgoulas</i>, Research Director, Zofnass Programm for Sustainable Infrastructure</p> <p>Closing the Financing Gap in Urban Resilient Infrastructure Co-Hosted by ICLEI</p> <ul style="list-style-type: none"> • What is resilience, and how can this concept be included into the design of sustainable infrastructure? • What do cities need in order to increase their likelihood for funding and what do investors need in order to invest? • What are the returns for cities which establish a resilient system? • How to increase capital flows while maximizing low-carbon and climate-resilient infrastructure investment? <p>Moderator: <i>Daniel Magallon</i>, CEO, Base Energy Foundation</p> <p>Speakers: <i>David Bresch</i>, Head Sustainability & Political Risk Management, Swiss Re <i>Oren Ahoobim</i>, Dalberg Global Development Advisors, Associate Partner <i>Alvaro Pretel</i>, Coordinator, GIP Pacifico <i>Yunus Arikan</i>, Head of Global Policy and Advocacy, ICLEI</p>
16:45–17:15	<p>CLOSING PLENARY Conclusions and Findings <i>Daniel Wiener</i>, Chairman of the Board, Global Infrastructure Basel (GIB) Foundation <i>Zoran Jelic</i>, EU Project Co-ordinator, C.R.E.A.M. Europe PPP Alliance and Political Organization Specialist* <i>Robert Kehew</i>, Human Settlements Advisor, Urban Environment and Planning Branch of the United Nations Human Settlements Programme (UN-HABITAT)</p>

9 Project Summaries

Europe

1. Fund for local authorities and governments in Bulgaria (FLAG)

Sofia, Bulgaria

The Fund for local authorities and governments in Bulgaria (FLAG) was established in March 2007 by the Council of Ministers of Republic of Bulgaria as an instrument of regional development. Its aim is to provide financial assistance to Bulgarian municipalities for the proper implementation of projects funded by Operational Programmes, co-financed by the EU. The Fund is a unique institution. It is structured as a revolving mechanism for financing the development and implementation of economically and financially viable projects in the area of municipal infrastructure, and for supporting capacity building of municipalities with a view to absorbing funds from EU Structural and Cohesion Funds.

The programme funded 775 municipal projects for the period 2009-2014, with 191 out of 265 Bulgarian municipalities having received FLAG support. The Fund guarantees access to loans for even the smallest municipalities, which otherwise could not receive funding on the market. It is currently seeking funding to continue its support for municipalities and municipal companies in the development and implementation of projects using EU grants; to provide loans for infrastructure projects such as water supply and waste water management, solid waste, local roads and transportation, etc; and to promote capacity building and sound financial management in Bulgarian municipalities.

2. Pasmaan Resort

Municipality of Pasmaan , Croatia

Pasmaan resort is located in the southern part of the Island of Pašman, Zadar County, in one of the best preserved and most attractive areas in the Adriatic Sea. Pasmaan resort is a Greenfield project with a development area of 260 hectares, located on a long seafront, out of which approximately 100 hectares are a construction area and some 160 hectares are a potential recreational and agriculture area.

The project concept includes the construction of hotels, villas, town houses, tourist apartments along with many other accompanying facilities and adequate infrastructure that forms part of a tourist resort. The goal of the Pasmaan Resort project is the development of a top-quality and attractive tourist destination with an innovative marketing concept that should enable sustainable tourist development on the Island of Pasmaan while preserving the natural characteristics of the area and respecting local traditions and cultural heritage.

Expected outcomes include a wide range of economic benefits for the project owner and society as whole. These include encouraging positive demography on the island, the realisation of sustainable economic, tourism and agricultural development, increasing the image and brand of the local area, increasing the income of the local, and creating an incentive for realising other projects in the area.

The municipality of Pasmán began development of the Pasmán resort in 2004. The feasibility phase is in final stages, while procurement is expected to be published in October 2015.

3. Geothermal heating project Kehl

Kehl, Germany

The city of Kehl, located in the geothermal province of the Upper Rhine Graben (URG), Germany, has a heating network which can be connected to the heating network of nearby Strasbourg, France. On both sides of the Rhine, geothermal projects are in preparation for supplying this transnational heating network. In the symmetric setup, the geothermal heat supply in the east will come from a geothermal doublet in the east of the city of Kehl. The doublet will target a fracture zone running in a north-south direction.

The goal is to develop a transnational heating network supplied by geothermal resources. The Kehl geothermal project by GeoT will supply about 10 to 15 MW of heat. The heat will be fed into an existing heating network which can also be extended. The Kehl network will be connected to the Strasbourg heating grid. The three projects by Fonroche in Strasbourg could supply more than 50 MW into the Strasbourg heating network.

The supply of geothermal heat could be extended to cover the heat supply of both cities 100% using geothermal renewable energy. This will significantly reduce the amounts of CO₂ emitted by the conventional sources used today. Like Munich, the Kehl/Strasbourg region could become an example of transnational use of the geothermal reservoir of the Upper Rhine Graben, shared by Germany, France and Switzerland.

4. Poggio Montone Geothermal Exploitation

Piancastagnaio, Italy

The project focuses on the development and construction of a sustainable energy point in the geothermal sector. The project is located in the Amiata area (south Tuscany, Italy), where geothermal conditions are exceptional, and where Sorgenia Geothermal owns several exploration leases. The area has been investigated through the execution of exploration wells which resulted in the identification of a suitable geothermal reservoir.

The objective of the project is to exploit a geothermal field with characteristics suitable for electrical energy production. The project will make use of the best technology available in the geothermal field, allowing the project owner to exploit the reservoir in a sustainable way and with virtually no atmospheric emissions. No other project of this kind has ever been implemented in Italy, where 900MW of geothermal plants are already in operation.

Given the exceptional availability of high grade geothermal resources, the geothermal sector is of great importance for Italian industrial development. Unlike other types of renewable technologies, the geothermal sector has been exploited for decades in Italy, therefore a number of local skills, industries and operators are already well established. The benefits of new investments in this sector, therefore, will be enjoyed by local companies, allowing for additional recruits and local growth.

5. 550 MW Polish Wind Portfolio w Swiss PPA

Southwest industrial area and Baltic coast, Poland

The project is run by an experienced Swiss/German/Polish wind energy developer, who has already developed and sold 50 MW of Polish wind farms to Danish and German institutional investors. They are currently developing 550 MW of wind power in eight locations in Poland. 200 MW are ready today, and will be in operation within 12 months, whilst all 550 MW will be in operation within 24 months.

The project is based on a Swiss A-rated long-term PPA, concerning all the renewable power produced by this project in Poland. There is no market risk, and the project uses only experienced EPC and O&M contractors and proven technology. The project aims to ensure a marked improvement of the bankability of Polish wind, as well as a significant reduction of CO2 emissions.

6. Mersinli WEP (Wind Energy Project)

Izmir, Turkey

The Mersinli project is a wind farm power plant with a capacity of 55 MW in Mersinli, İzmir, Turkey. The project represents a “ready-to-go” asset, as all major phases of its development have been completed, while there is also potential for further expansion. Evita Group is currently looking for a strategic or financial investor to acquire up to a 40% stake in the project, against a 15 million USD equity injection.

Continued strong growth in demand for electricity is causing electricity prices to rise; insufficient investment in electricity supply have led to a visible supply-demand imbalance; and shrinking reserve margins threaten supply continuity. Moreover, there are improving market conditions, due to on-going liberalisation efforts.

The project aims to provide the necessary technology for the production of clean energy, promote the protection of the environment, as well as the education of citizens on the subject of clean energy.

Americas

7. Natural Gas for low income families in Greater Buenos Aires

BUENOS AIRES, Argentina

The Integral Gasification Project aims to provide low income communities with piped natural gas. In Greater Buenos Aires there are over 6 million people living in poverty with limited or no access to basic services (water, drainage, electricity, gas) or affordable adequate housing. The City of Moreno, located in northwest Buenos Aires, is characterised by auto-construction, high levels of informality and unemployment, a glaring lack of infrastructure and little or no access to basic and financial services. There is therefore a massive demand for basic services and infrastructure in this zone.

The project aims to connect 10,000 families, thus increasing their income by 5%. Natural gas will also have a positive impact on their health, quality of life and levels of comfort. From an environmental perspective, the project provides a cleaner solution to the wood, coal and gas bottles which families without gas currently use to heat their homes and cook.

Moreover, the project will generate social capital, and encourage neighbours to work together to improve their neighbourhoods. The projects which have already been implemented show a very positive impact with regard to levels of trust and cooperation between neighbours, as well as between neighbours, companies and the state.

8. Coast proper for bathing 100%

Fortaleza, Brazil

The project aims to install sanitary services to connect approximately 16,000 buildings located on the Fortaleza coast to the public sewage system, thus helping to correctly manage more than 10 million litres of sewage per day. The benefits of the project extend far beyond the correct allocation of waste, as it will also have a noticeable impact on public health. The project will also significantly improve the quality of the beaches on a 11 km strip of the Fortaleza coast, thus benefiting not only the population of the nearby neighbourhoods, but the entire city.

The project will promote better management of the sewage and solid waste management system, help ensure the access to public services of low-income areas with high rates of poverty and violence, and promote social inclusion. Furthermore, by improving the quality of the water, it will

ensure that the coast of Fortaleza is 100% safe for bathing. In order to achieve this, the Municipality of Fortaleza, the Government of the State of Ceará and the Federal Government are investing in waterfront redevelopment and river recovery projects in the city. This will also improve the living conditions of the population currently residing in the area which is close to the city's rivers and prone to flooding.

9. Recycling Attitudes

Fortaleza, Brazil

The "Recycling Attitudes" project aims to construct solid waste sorting centres at strategic points of the city. It will include the construction of points for collecting recyclable waste. Voluntary Delivery Points (PEV's) will also be installed in areas covered by the project. The project shall also include the installation of underground deployment containers, and the purchase of bicycles adapted to collect recyclables (ecobikes) in areas surrounding the sorting centres. Moreover, staff will be hired, and the necessary equipment for training courses in environmental education will be purchased. The target audience of these courses will be the residents of areas covered by the project, and people directly or indirectly involved in the collection and disposal of solid waste. The project aims to promote environmental education in areas around streams and ponds located within the watershed of Fortaleza, such as the Maritime Shed and the Coco river.

The aim of the project is to encourage and promote education and proper waste management, in order to minimise the problems resulting from mismanagement and inappropriate waste disposal. It aims to generate employment and income through investments in infrastructure; encourage reflection and local action; train and mobilise environmental agents; create a culture of proper waste disposal and recycling, and reduce the amount of irregular points of municipal waste.

10. Fortaleza Ceara Brazil

Fortaleza, Brazil

The project focuses on the installation of a light rail system in the city of Fortaleza, with the purposes of offering alternative local and tourist transport as well as connecting the east coast of the city of Fortaleza with the downtown area, where the main tourist attractions are to be found.

Composed of two circular lines (round trip) stretching over 8 kilometres, the light rail cars will carry an estimated 4200 passengers per day. This project is a part of a major revitalisation project of the city centre. Integration with other public transit services will improve traffic in downtown Fortaleza by reducing the flow of buses and by decreasing traffic and congestion, thus producing a more sustainable urban space and ensuring better quality of life. The establishment of a better connection route between various city sights will offer tourists a safe and pleasant transportation option.

The project will reduce noise, eliminate pollution, and visually blend in with the city. This new system of intermodal transport will be a great environmentally friendly option, connecting most of the city's tourist attractions.

11. Expansion of the Guarulhos Recycled Concrete Factory

Guarulhos, Brazil

This project proposes the expansion of an existing recycled concrete factory operated by Guarulhos City Hall. The plant recycles construction waste, transforming it into non-structured concrete, which can then be used as raw material for urban artifacts and city maintenance, as well as take the form of urban furniture, such as tables, benches, seats, planters, tiles, sidewalks, pavement, culverts, gutters and so on. This process ensures a reduction of private construction waste, as well as a reduction of the raw materials required for city maintenance, while also preserving the city's natural resources.

The existing plant currently produces 4000 m³ of non-structured concrete per month. The planned expansion would allow it to reach 8000 m³ per month. The expansion of the plant in question will be accompanied by the acquisition of two concrete mixer trucks.

The proposed expansion will significantly increase the utilisation of recyclable materials, improve the production of urban artifacts, and promote sustainable city maintenance practices.

12. "Building a city for people"

Sao Paulo, Brazil

The project focuses on the creation of 100 centres with the capacity to host up to 20 people living in conditions of social vulnerability, such as the city's homeless population. The residents of these centres will be trained to act as environmental agents. Each host unit will be located in a different administrative district of the city of São Paulo, with its surrounding territory coming under the responsibility of the resident environmental agents. The role of these agents will be to contribute to waste selection and recycling, preservation of green spaces and responsible water consumption.

The agents will be trained and accompanied by a multidisciplinary team, and individual therapeutic projects will be established for each agent, taking into consideration their individual needs.

The project will promote the inclusion of 2000 individuals living under conditions of extremely high social vulnerability, by providing them with access to certain basic rights such as health insurance, housing and work. The environmental training received at these centres will allow the residents to

focus on building sustainable territories. The agents will be invited to act alongside the regular city workers in the creation, maintenance and preservation of the city's green spaces.

With the help of these actions, the project aims to promote citizenship for the most vulnerable part of the population by providing housing and basic environmental training. It will use the residents' work in order to promote their socialisation, and transform the city into a citizen-friendly space. The project's objective is to create a sense of community within the different districts by promoting the re-development of public spaces with the help of lighting, gardening, and landscaping projects, and by encouraging the citizens' appropriation of these spaces through communal activities such as sports projects, cultural workshops, recreational activities and other social interactions.

13. Canal Parque Gabriel García Márquez

Medellin, Colombia

The project focuses on the construction of new facilities for a local TV station that is associated with the Mayor's office. The facilities will consist of three buildings, two of which are already in construction. The third is a 4 story building of 1800 m², which will contain an auditorium, a food court or restaurant, an ATM, and offices. It is located in one of the nicest parts of the city, and is part of the public park "Gabriel Garcia Marquez". The design of that building has been completed, and construction will start as soon as funding has been obtained.

The whole project is conceived as a silver LEED construction. A TV studio tour, giving the public the experience of how TV shows are made, will be planned. Moreover, a „rain path“ has been designed, the aim of which is to teach people what happens in a city when rain falls, as well as to illustrate the importance new materials and systems to collect water and ensure proper waste disposal.

14. Mexico, Waste to Energy

Arandas, Jalisco, Mexico

Mexico is faced with a severe waste crisis. There is, however, the potential to create energy from this unlikely source, which is constantly growing at a substantial rate. The waste-to-energy market has enormous potential, and Enersaving de Mexico aims to position itself at the front of the line in this new and expanding market.

Enersaving, a renewable energy developer, is orchestrating a portfolio of waste-to-energy (WTE) projects in Latin America, starting with Mexico. Each project is rolled out by a Special Purpose Vehicle (SPV) and is a Finance Project business model. Enersaving has been established to promote, build, own, and operate WTE facilities aimed at addressing the critical problem areas of managing waste such as solid municipal waste, tyres, and sludge. Planta de Tratamiento de Residuos a Energía de Te-

otihuacan, SPV of the first project, has won a public bid in Arandas, Jalisco, Mexico, and has been granted with a 20 year Municipal Solid Waste (MSW) feedstock concession.

The project's main goal is to generate green energy without the use of fossil fuels and secure capital or debt funding for the first project. The plant in question will produce an estimated 29,735,897.7 kw/h per annum, with an average operation of 94%.

The project proposes to implement new, less expensive, more efficient, more cost-effective, and truly green technology which is not yet present in the country, providing a pioneering solution to Mexico's waste and landfill problems. It will promote economic development, and provide energy resources to industries located in the same area as the plant. Moreover, the project will process existing landfill waste and free up land for productive use, while eliminating illegal waste dumping.

The project is currently in the feasibility and implementation stage, and is ready to accept investments.

15. Deep Green Loan Pool for Multi-Family Housing

Boston, United States

The project aims to establish a fund to provide USD 100 million in loan capital, backed by a USD 50 million credit enhancement, for multi-family housing upgrades. It will address the difficulty which both public and private sector owners face in obtaining gap financing for upgrades that improve a property's operating profile, in particular its energy efficiency and resiliency.

The fund aims to be a North American version of the EIB European Energy Efficiency Fund. The proposed fund targets the specific issue that little or no collateral is normally available to secure such loans, as a result of senior debt, prepayment penalties, and restrictive loan covenants on existing debt. Underwriting hinges on the observation that, even without an additional security interest, a first-mortgage holder improves the value of its existing collateral by originating such a loan. Credit risk is substantially mitigated by an energy performance contract, whereby repayment is tightly linked to and covered by a guaranteed flow of operational savings.

16. Piar - mobility and sustainability

Piar, Venezuela

Transport is one of the basic demands of society because it enables economic growth and development. However, the development of transportation so far has been accompanied by an increase of greenhouse gases (GHGs). Conventional technologies and transport modes emit large amounts of CO₂, which have made the transport sector a major contributor to global climate change. The Piar municipality has a population of 117,476 inhabitants, and is open to the progress and develop-

ment of production, trade and services, with a historic tradition of human and cultural exchange in the capital city, Upata. In recent years Upata City has experienced rapid population growth. That is why the implementation of a sustainable transportation system in the Piar municipality is necessary to provide an alternative for mobility, reduce emissions and benefit the society.

The project aims to meet basic needs, such as access to the workplace and to educational and cultural facilities. It will contribute to the establishment of a dynamic economy whilst limiting emissions and waste. It will ensure economic and social sustainability, and increase the mobility of all citizens, especially those from lower income sectors. The project will be accompanied by an environmental awareness campaign. This intelligent transportation system will reduce transportation times and distances, and increase the safety and comfort of its users.

Asia

17. Dezhou China Co-Generation District Heating

Dezhou, China

The project aims to adopt advanced technology for heat recovery using the condensation of water waste. It involves the technical reconstruction of each production line so as to make them more energy sufficient. The aim is to make the most of the condensed water circulation system of the company. The total construction area of the project is 1375 square metres; this includes two heating pump rooms and cooling pools. 76 sets of instruments and equipment have been purchased, including, among others, a heating pump and a dosing pump.

The project's goal is to recover and utilise the heat wasted in the process of production. The energy thus collected will be used for the heating of residential areas near the project site. It is estimated that the project could provide heating for 870,000 square metres of construction area. The project will thus save 4.32×10^8 J in heat, and significantly reduce CO₂ emissions in the area. It will help improve resource utilisation, and promote resource recycling. The project will make a significant contribution to the region's green economy and environmental protection.

18. METRINO - Personal Rapid Transit for cities

India: Delhi-Manesar and other 12 already available (Europe, Brazil, India), India

METRINO PRT represents a transformational advance in urban transportation. Compared to traditional systems and supported PRT systems alike, METRINO requires less space, especially at street-level; it is substantially cheaper to build and operate; and it offers convenient access, with a denser coverage of stops than other systems can achieve. It does not interfere with road traffic and does not create pedestrian severance; on the contrary, it offers improved mobility for all. The project is likely to be financially viable without subsidies in most cities, and it will yield

major environmental benefits, lowering power requirements for transport and tackling traffic congestion by offering an attractive alternative to the private car, as well as to traditional public transport. The technology involved is perfectly „green“, since the system is energy self-sufficient. Transport is individual, like a taxi, and as inexpensive as a bus. It includes effective anti-vandalism protection, it boasts an average speed of 50 kph, it involves no queuing or waiting, no congestion or “red lights”, and no collisions – maximum safety is guaranteed. The project aims to significantly reduce car, bus and truck traffic in the city.

19. The AGM DigiHub pilot in India

New Delhi, India

The AGM DigiHub pilot programme is a new concept for smart infrastructure development which aims to create learning environments in poor areas that are integrated with digitalised operating centres. The project aims to utilise wireless technology to create mobile learning platforms and interactive community screens, housed in eco-efficient buildings.

For primary education, a place-based pedagogy will be used, allowing children to learn from their own environment and act as agents of environmental change in their communities. The proposed education complies with the Indian state curriculum, which has been updated with an emphasis on environmental and hygiene education, teaching of technology and programming especially targeted to girls.

In addition to the educational benefits, the AGM DigiHub’s digitalised operating centres will include a production unit which generates clean energy, water and sanitation solutions for local residents. Inclusion of women and girls will be achieved through equal technology teaching, also targeted to illiterate parents. Parents will also participate in Green Job education programmes and find means of earning their livings as entrepreneurs via the AGM DigiHubs. The pilot programme will test innovations of sustainable technology, of which the most important is the solution to clean energy and sanitation problems.

The pilot for the DigiHubs will be based on a movable and modular concept developed from Bamboo. There is a future plan to build up to 10 000 schools with similar concepts in different parts of India. The concept will merge innovative pedagogical, architectural and ICT-based solutions and express deep responsibility for sustainable development.

20. Integrated Solid Waste management

Panaji, Goa, India

The city of Panaji is one of the few cities in India where Municipal Solid Waste (MSW) is collected, segregated, stored and transported. Households and commercial establishments store the segregat-

ed (Bio-degradable & Non-Biodegradable) waste. In 60% of the housing associations, as well as in all hotels and restaurants, a 4-way dry-waste segregation system is also implemented. Collection & transportation of the aforesaid components is at present done separately.

The city proposes to switch to an integrated municipal solid waste management system, and thus requires support for a Waste-to-Energy plant based on biomethanation for disposing the organic fraction. The electricity thus generated could be used for in-house plant operations or used in partnership with an energy services company. The project aims to create a modern, fully automated, centralised MSW treatment facility, which would be a source of profit rather incur additional costs. Revenue generation from the plant would ensure a major portion of the operating costs are met.

The project would have significant economic and sanitary benefits for the region. Furthermore, it would encourage community participation through information, education & communication.

21. Energy Efficient Street Lighting

Panaji, Goa, India

The project aims to redesign and implement energy-efficient technology, smart information communication technologies (ICT), and management information systems (MIS) to ensure improved maintenance and operation of around 5600 streetlights in the city of Panaji.

The goal of the project is to improve the existing street light infrastructure in Panaji, with the help of private sector participation. It will optimise luminance levels to conform to applicable lighting standards, whilst improving public safety and aesthetic appearance.

The project will introduce smart energy management and control systems to improve the existing service. The street lighting system will be operated and maintained efficiently, minimising costs – including cost of capital – while keeping high standards of service. The project will promote energy efficiency, and the use of both smart information communication technologies (ICT) and Management Information Systems (MIS). The street lights will be fitted with LED light fixtures. Accurate digital meters will be procured, allowing for continuous remote monitoring. Taking into account the dependence of state economy on tourism and the importance of safety & security in sustaining tourism in the state, the project is of utmost priority.

22. Grand Design Urban Public Sustainable Transportation

Bogor City, Indonesia

The project aims to complete the construction of corridors 4, 5 and 6 of the 7 projected Trans-Pakuan corridors. Construction of this service has become a priority in the 5-year-plan of Bogor, and

will be prioritised by the Bogor city government. Transpakuan Corridors 1-3, already in operation, currently serve 1,495,439 passengers per year and have operated since 2007.

Transpakuan corridors 4-6 require approximately 116 buses, covering a route of almost 70 km. Operational buses will be equipped with smart card technology and a GPS system and there will be real-time information on each bus shelter.

The project aims to reduce traffic in Bogor, manage road transport in the city through Transport Demand Management (TDM) and Transit Oriented Development (TOD). It will also reduce emissions through the promotion of low-emission fuels and large-capacity public transport. Furthermore, it will support an "angkot" (14-seat micro-bus) conversion policy, by employing "angkot" operators as the main operators of the new buses in corridors 4-5-6.

23. Bontang Regional Airport

Bontang City, Indonesia

Bontang City is one of the busiest cities in Kalimantan; it has an active industry sector, and it is a tourist destination, as well as one of the main destinations for investment and development in the country. However, currently, the only way to access Bontang from Indonesia's capital, Jakarta, is a 7-hour drive through Balikpapan. Alternatively, there is also one small-sized airport, privately managed by PT Badak (the flight from Balikpapan is around 45 minutes). Taking this into account, Bontang is planning to develop its first public airport, which will facilitate access to the city itself, as well as other surrounding cities, including Kutai Timur and Kutai Kartanegara. The new airport will connect many cities on Kalimantan island, replacing the current privately-owned airport. The airport will be located in the southern part of the city, in the Sub-District Bontang Sari, covering an area of up to 92 hectares.

The project aims to improve access to Bontang and other cities on the island of Kalimantan, including: Balikpapan, Samarinda, Banjarmasin, Tarakan, Berau, Pontianak, and many more. It shall replace the existing private airport and provide better public transport.

24. Biomass to Energy (Bio Power)

Cebu, Philippines

The Philippines has the second highest electricity price in S.E. Asia. This project aims to combat that by introducing an alternative source of energy. Wood chips (biomass) from the company's adjacent 900 ha (2,224 ac) sustainable forest will be used to fuel the first of ten power plants generating 7.5 MW per hour of "green" electricity. The project will augment and contribute to averting the looming energy crisis that faces the Philippines, and it is scheduled to start power generation in 2016/7. As a result, it will create around 860 "green jobs" per power plant. The project will alleviate the country's

massive energy shortage. Renewable power generation helps countries meet their sustainable development goals by providing access to clean, secure, reliable and affordable energy. Creating a self-sustaining power plant will significantly contribute to the sustainable development of the country.

25. CATBALOGAN SKY CITY MEGA PROJECT

Catbolagan City, Philippines

The Sky City Project aims to establish a climate-proof city of the future with great local and regional significance. The city will be constructed on 440 hectares of land, situated 120 metres above sea level, not far from the location of the current city. The selected location includes flat land and hills, and is surrounded by picturesque scenery such as a mountain range, a beautiful coastline, a river, and a man-made lagoon.

The aim of the project is to create a green city based on a holistic lifestyle. It will function as a decongestion tool and as a climate change mitigation and adaptation tool. It will create a new sub-regional centre, more resistant to typhoons and their aftermath. The new city will include local and regional government centres, a corporate centre, an educational centre, a regional health & wellness zone, a DRRM Command & Evacuation Centre, an ICT Hub, a twenty hectare viewing deck, as well as a theme park, a sports complex, hotels and an intermodal terminal.

26. Ufa Maternity Hospital and Children's Clinic

Ufa, Bashkortostan, Russia

The local authorities of the City of Ufa, Bashkortostan Republic, Russian Federation, wish to address the chronic problem of lacking or sub-standard healthcare facilities by encouraging private investment. Their objective is to modernise existing facilities and improve the quality of medical service and treatment for all citizens. They also propose to renovate, expand or build new medical facilities in order to meet the increasing demand and establish new and improved medical service standards for underprivileged citizens throughout the city.

As a part of this project, Kapitalnet AS and its subsidiary Kapitalnet Partners, has obtained a government contract to design, finance, and develop Maternity Hospital No:3 and Children's Clinic No:17 in the City of Ufa.

The objective of the project is to create modernised hospitals, adopting the latest technology in medicine and making improved medical services available to all citizens. This standardised and transparent government healthcare project funding structure is adaptable and can be replicated by other cities.

27. PPP (Private Public Partnership) BRT (Bus Rapid Transit System) Project

Ufa, Bashkortostan , Russia

600.000 people commute daily in the city of Ufa. The project's objective is to design, finance, build, and operate a BRT system running on CNG and based on a PPP with Ufa City Administration. It will introduce new technologies such as electronic ticketing, signalisation, video communication, and improve city commuter travel standards by using modern, comfortable vehicles.

The project further aims to eliminate diesel-run vehicles, create jobs, reduce traffic, and improve carbon emission standards by encouraging commuters to use the BRT system rather than their own vehicles. It will reverse the chaotic trend in public and private transport development, and upgrade and improve the negative image of the public transport system.

28. Establish green investment energy village

Galle , Sri Lanka

The project aims to establish a green investment energy village in Galle city. Galle is an ancient marine hub and heritage site, which attracts many businesses, investors and tourists. The city has great potential for green investment and its subsequent promotion. This project aims to build up green partnerships among public & private actors to create carbon free city. It will promote eco-friendly investment, including green power generation projects and other relevant sectors. It will focus on tourism, improve the city's green spaces, and create green jobs for the local young generation. The project, as applied to Galle, is a pilot project whose success will determine whether it will be expanded to other cities.

29. Pilot Project of the Collaborative Governance : Medical Hub Wellness in Low Carbon Community @ Pak Chong

Pak Chong, Thailand

The project aims to promote collaboration and communication across various sectors in order to design an area focusing on community well-being. Sustainable infrastructure is necessary in order to ensure a healthy, people-centred environment. Thus, the project aims to ensure that the community's natural resource demands are consistent with the long-term capacity of its infrastructure. "Green infrastructure" – such as trees, gardens, ponds, wetlands, hedgerows, streams, green ways, green roofs and engineered ecologies – are cost-effective; these elements clean and constrain storm water flows, contribute to a quieter and more pleasant micro-climate, shade buildings in all seasons, improve air quality, and generally contribute to the quality of life and biodiversity of a community.

The project aims to allow the city of Pak Chong to become carbon neutral by 2030. It includes road construction with auxiliary facilities and low carbon transport, a soil and water conservation system, a pipeline system, solar farms and energy storage, a hospital for foreigners using Climato Therapy in

the Mountain Province, a rehabilitation centre for patients with chronic diseases, an elderly care home, prototype smart homes, an eco-resort, a low carbon community forest bond and a low carbon community mall.

30. PHU CUONG 1 WIND FARM

Soc Trang , Vietnam

The project aims to build the first wind power plant of 170MW by taking advantage of the great wind resource along the coast in Soc Trang province, Vietnam. The area will be equipped with 85 wind turbines (2MW), divided into 3 areas of 15 turbines (30MW), 30 turbines (60MW) and 40 turbines (80MW). These will be connected to the 110 kV transmission grid.

The project will have significant socio-environmental benefits, since it will produce between 117 GWh/year and 665 GWh/year of electricity and create local jobs. Moreover, the project can significantly reduce the area's yearly carbon emissions by using Vietnam's great wind energy resources. It will create a boost for the renewable energy sector and provide the foundation for the future strategic expansion of Phu Cuong Group into energy and public services. Finally, the Phu Cuong wind farm will become a major tourist attraction, offering a unique and valuable opportunity to educate the local population and Vietnamese people on serious climate change issues and the benefits of renewable energy.

This large-scale, long-term project will create at least 120 jobs and contribute significantly to the economic growth, industrialisation and electrification of the Soc Trang province. As a result, the project has been designated one of the three most important projects in the Provincial Master Plan for Economic Development from 2015 to 2020 of Soc Trang.

31. The Third - Ho Chi Minh City Water Environment Improvement Project

Ho Chi Minh, Vietnam

In order to improve the connectivity of the drainage system in Ho Chi Minh City, a wastewater treatment system has been created as part of the Water Environment Improvement Project (Phase I). Phase II of this project is currently being implemented.

The proposed project aims to ensure the presence of efficient investment capital aimed at tackling flooding and promoting environmental sanitation in the basin of the Tau Hu - Doi - Te canals. As part of the project, the rainwater drainage system will be improved, thus reducing flooding in the aforementioned basin. A resettlement area will be created for people in the project area, various sewage systems and roads will be constructed, and bridges in the area will be repaired.

The project will enhance the urban area, improve the environment, and help to overcome water pollution in the Doi - Te canal through the construction and development of the wastewater collection and treatment system.

Africa

32. Starsol Chad

N'Djamena, Chad

Currently, the total power generation capacity of Chad is very limited. Moreover, significant environmental problems are generated by deforestation and desertification. Deforestation, especially in Southern Chad, is caused by the lack of access to electricity, resulting in heavy dependence on trees for charcoal and firewood. Most of Chad's power consumers use their own expensive and environmentally unfriendly diesel generators. This project aims to address Chad's growing demand for reliable and affordable electricity. STARSOL CHAD is a 40MWp solar photovoltaic power generation project conducted by a private European consortium including development and engineering firms (New Solar Invest and CIEC) and an investment house (Arborescence Capital). The proposed solar PV plant is ground-based and located in fields located near N'djamena, the capital city of Chad. The power production generated will be connected to the grid. The Power Purchase Agreement (PPA) with SNE, the national utility company, has been signed on 22nd October 2012, backed by the Chad Republic sovereign guarantee.

As a result, the project will diversify Chad's dependence on fossil fuels and allow the country to rely on domestic renewable resources rather than oil, thereby protecting the country from the volatility of world oil prices. Furthermore, it will reduce CO2 emissions, strengthen the power grid, and give access to clean energy to 16,871 households. Finally, a capacity building programme (including transfer of know-how and transfer of technology) will be developed and serve as a flagship initiative at national and at regional level. Chad will be one of the first countries to integrate large scale solar PV power into its national electrical grid, which will constitute an important innovation strategy for the country.

33. Development of Bus Rapid Transit demonstration corridor in Cairo, Egypt

Cairo, Egypt

The impacts of Cairo's traffic congestion are manifested in various forms: traffic delays, air pollution, loss of investment, and lack of road safety. Increased car ownership, poor traffic management, fuel subsidies and a lack of investment in public transportation are contributing to this problem. Cairo's notorious traffic costs Egypt USD 6.5 billion per year. Bus Rapid Transit (BRT) – representing a cost-effective mass transport mode – seems to be a feasible option for Cairo. The project's overall

vision is to move towards providing efficient, clean and safe mobility and accessibility by establishing a BRT system in Cairo.

The project aims to encourage a modal shift away from private cars and towards public transportation, in order to achieve reduced travel time and air pollution, improved safety, and better accessibility to economic and social opportunities. After establishing a service, business and infrastructure design plan, the project aims to create a functional BRT demonstration corridor, with a capacity of 30,000 persons/ hour/direction. This BRT system will be fuel efficient and integrated with other low carbon means of transport such as cycling and walking. Moreover, it will make use of significant 'big data' for transport demand analysis.

34. Utilisation of Waste-by-Rail for the Transportation of Waste to an Eco-Industrial Park, Ghana

Accra, Ghana

The project aims to introduce and implement simple but modern technologies allowing for waste management at affordable and competitive rates. Waste-by-rail (WbR) is simply a system of disposing large volumes of waste by transporting it from various sources via railway lines to a single point of disposal. This mode of waste transport involves moving all types of solid and hazardous waste from across a broad geographic area, connecting a network of Waste Transfer Stations (WTS) at various locations to the final disposal point. Under this system, the final destination could be a landfill site and/or waste processing plants such as waste-to-energy (WtE) plants for electricity generation, compost and recycling plants or similar.

Waste collection in Ghana is generally undertaken by Refuse Collection Vehicles (RCV), used to collect and move the waste from roadside bins to transfer stations. The last stage is to then transport the waste to processing plants such as compost & recycling plants, or to a landfill. In the Greater Accra Region (GAR), the main disposal method is the use of landfills. The Accra Compost & Recycling Plant (ACRP) was recently built for use by the service providers. However, the volume of waste produced in GAR will most likely soon exceed the capacity of this plant, as well as that of the region's landfills, many of whom have been forced to close down amidst public displeasure and agitation. The increased cost of maintaining and keeping landfills in urban areas is unsustainable, especially in the long term. Alternative solutions must be sought, not only for waste treatment, but also for transportation. This project aims to provide a cost and energy efficient solution to this problem.

35. Accra Light Rail Transit (ALRaT), City of Accra, Ghana

Accra, Ghana

The project aims to develop a public urban transport system (Light Rail Transit (LRT)/metro system) and infrastructure for the City of Accra which will be sustainable, safe, efficient, and environmentally

sound. It will reduce the current high car/vehicle dependency, congestion, pollution and carbon emissions, and increase productivity. The project will have significant socio-economic benefits, since it will create jobs, raise the value of land, promote capacity building, reduce poverty and improve quality of life for all citizens.

This clean and sustainable system will benefit directly from lessons learned from other LRT projects around the world. It is an efficient, safe, reliable, comfortable, efficient, attractive and easily accessible solution to Accra's traffic problems.

36. Liwonde Power Generation and Liquid Fuels Plant

Blantyre, Malawi

Malawi's electricity demand (340MW) currently outstrips supply (280MW). The company Vale is currently constructing and rehabilitating a railway line from their mine at Moatize, Mozambique, to the Nacala port terminal on the coast. This line is routed through Malawi, and its Government has signed a concession agreement with Vale Logistics that secures access of freight cargo on this line. This project will harness this freight capacity and take advantage of cheap, low-grade (thermal) coal produced and made available by Vale as a by-product at their coal-mining operations (but which is not economical for them to sell, store or export). Using proven coal-to-liquid technology (CTL), this coal will be used as feedstock to produce and sell electricity, diesel and fertiliser (and other by-products) at a power generation and liquid fuels plant in Liwonde, Malawi, located on the upgraded railway line and suited as an intermodal transport hub linking road, rail and lake transport.

Over 3 phases, the co-generation plant will produce: power, fuel (diesel and naphtha oils), sulphur, clinker (cement production), and fertiliser. Production costs of these goods are expected to be competitive (or cheaper) within Malawi/imported supplies. Naphtha oils provide further export opportunities; fertiliser can be used in Malawi's large agricultural sector.

The project will promote alternative fuel and energy production technologies. It aims to assist Malawi in becoming more self-sufficient, ensuring energy and energy cost security, generating export earnings and increasing employment.

37. Jardin Botanique de la ville d'Agadir

Agadir, Morocco

The Botanical Garden Project of the City of Agadir is located in the old and historical city of Talborjt, which was completely destroyed by an earthquake in 1960. The architecture of the botanical garden will maintain the old paths of the destroyed city, preserving the main passages, places and plots. The project will focus on landscaping, and on designing and constructing, among other things, footpaths, green areas and plantations, research laboratories, a sports field, and fountains.

The project is expected to have significant environmental benefits. It will promote the conservation and development of the local flora, it will help the surrounding ecosystem adapt to climate change, and extend the network of green spaces in the city. Furthermore, the project will produce important social benefits, since it will improve the quality of the urban landscape in the city and ensure a better quality of life for everyone. Finally, its economic and financial benefits will be significant as well, since it will create many job opportunities, help develop the area's medicinal plant economy, and promote sustainable tourism.

Moreover, the project also aims to put in place a regional strategy to accumulate expertise and promote scientific research in the field of botanic and plant conservation. The botanical garden project will be a living museum of the City of Agadir, where local and regional plants will be collected and exposed in a distinguished and commemorative way.

38. Leachate Treatment in the landfill of the city of Rabat

RABAT, Morocco

The project's main objective is the treatment of leachate from the landfill of Great Rabat using an innovative and sustainable process. It consists of forced evaporation of concentrate, resulting from a reverse osmosis process. This forced evaporation process uses abundant solar renewable technologies in order to heat the concentrate and evaporate it in greenhouses normally used in local agriculture.

The project aims to tackle a major waste treatment problem encountered at both the local and national levels. It will allow for the total treatment of the leachate, whilst ensuring the preservation of ground and sub-surface water, as well as of the environment and air quality of the region. It will use renewable and natural resources to heat and evaporate the leachate, and confine and control the polluted vapour resulting from the evaporation with the help of greenhouses.

The proposed technology will complement the actual treatment of leachate through reverse osmosis, which currently produces around 40% of concentrate. In Morocco, there is currently no satisfactory solution for the treatment of this type of liquid waste. Therefore, this technology provides an innovative and sustainable alternative.

39. Solar-diesel-hybrid systems for remote or off-grid industries

Kigali, Rwanda

A major challenge in the East African economy is the inadequate or nonexistent electrification of remote areas. As a result, remote industries and communities must rely on diesel genset systems for power. However, diesel fuel costs continue to rise, and transport costs can often double the spot

price for a litre of diesel fuel. Therefore, many governments in East Africa, including the Rwandan government, are supporting the electrification of remote areas based on decentralised systems.

In sunny regions, Photovoltaics (PV) have become the most economically viable way to generate power. However, PV systems only produce power during the day, so there is still the need for diesel generators at night, since battery systems are not included due to cost and ecological reasons. In East Africa, tea and coffee production are the biggest export sectors. Both sectors rely on 24/7 power availability. New Energy Scout is working with Practical Action, a UK-based NGO with a local office in Kigali, to develop PV-diesel hybrid systems aimed at remote tea and coffee factories. The strategy includes the development of three pilot projects, a roll-out phase for more projects in other regions and the application of the project's lessons in other community projects and mini-grids.

The project, focusing on off-grid PV projects, aims to create jobs and transfer crucial know-how to these countries based on a private economic initiative. It will establish a local start-up, promote capacity building, and bring the necessary technology to the market.

40. Saint Louis Wind Farm

Saint Louis, Senegal

The proposed project consists of the late development stage, financing, construction and operation of the Saint Louis Wind Farm (with a planned capacity of 50 MW). Located about 25 km south of the Saint-Louis town and 200 km north of the capital Dakar, the wind farm is currently in the last stage of development. Land has been secured and the final PPA negotiations are currently taking place.

Based on accurate, on-site wind measurements, the estimated load factor stands above 40%, about 3700 full load hours, thanks to wind turbines specially designed for moderate wind speed sites like the one chosen for this project (class IIIB IES). As a result, there is enough flexibility to secure a feed-in tariff accommodating the goals of the state-owned distribution company (off-take price below the current market price) and, at the same time, provide an adequate risk-return balance for investors. Saint Louis Wind Farm is intended to be the first project of a pipeline that may ultimately reach 250 MW.

The proposed wind farm will provide a valuable source of renewable energy, strengthen Senegal's energy sector by helping to diversify its energy sources, reduce the need for Senegal to import energy from neighbouring countries, as well as the country's reliance on fossil fuel combustion, and provide local jobs and improvements, in particular during the construction phase.

41. Sewage mining

Port Elizabeth, South Africa

Tons of sludge are currently produced every day in the Port Elizabeth municipality. There is at present no adequate solution for this issue; huge sums are spent for further treatment and disposal.

The proposed technology extracts suspended solids from wastewater, changing the mass balance and reducing the amount of sludge formed in the treatment process by up to 50%. By reducing sludge formation from the very outset of the treatment process, the SRS™ creates an efficient and clean method that reduces the cost of treating, transporting and disposing of sludge. This results in augmenting the capacity of waste water treatment plants, and requires less energy. Less sludge means less incineration, fewer landfills, and reduced surface and groundwater pollution. With less sludge, there is less energy consumption. Since the SRS™ consumes less electricity and forms less methane-containing sludge, GHG emissions are reduced, making WWTPs eligible for valuable carbon credits.

The project aims to expand the capacity of the Kelvin Johns Waste Water Treatment Plant (WWTP) to 50,000 m³/d, reduce sludge production by up to 40%, cut the plant's operating expenses by up to 25%, and increase plant capacity by 20%.

42. Pyrolyses plant for tyres

Port Elizabeth, South Africa

South Africa has around 60 million waste tyres across the country, and almost 11 million more tyres are added to this number every year. Many of them are burned for their scrap metal content, releasing toxic fumes and liquids in the process; others are dumped in the environment, where they provide breeding grounds for vermin and mosquitoes that spread disease.

The project aims to obtain the equipment necessary for the pyrolysis of 5000 t/a of old tyres. REDISA (Recycling and Economic Development Initiative of South Africa) will provide the required amount of used tyres. The provided material will be shredded and all metal content will be removed. The planned pyrolysis plant will then provide the thermal dismantling of organic substances under oxygen shortage, in order to recover the primary resources from the input material. The plant is expected to be energy independent, after an initial adaptation period. The energy required for this process will be produced with the help of recovered gas, and the remaining energy and resources will be sold.

The aim of this project is to reduce environmental pollution and fire hazards, whilst eliminating what has become a breeding ground for vermin and mosquitoes, which in turn spread dangerous infections. Another benefit from this equipment is that primary resources such as gas (12%), oil

(50%) and carbon (38%) can be obtained from the old tyres. The gas will be used to produce the necessary energy to run the plant, whilst an additional 40KW can be fed into the grid during operating hours. The remaining products can be sold at market value. The pyrolysis process does not leave any parts of the waste unused, and it does not produce waste water.

43. EdCorp

Grabouw, Cape Town, South Africa

This project was conceived in 2005 in reaction to the need to address underdevelopment in South African rural areas. The Grabouw Integrated Sustainable Development Programme (GISDP) is one of six pilot projects aimed at addressing rural sustainable development in South Africa, introduced throughout the county.

The aim of the GISDP is to broaden the economic base and transform the currently underdeveloped rural Grabouw Communities through the strategic development of the town by implementing a range of projects to address the triple bottom line of environmental sustainability, economic development and social uplifting. It aims to enhance social cohesion, use infrastructure as a catalyst for unlocking economic development opportunities without upfront capital cost, and focus on the development and growth of entrepreneurs to address socio-economic disparities in educational programs. The project will promote skills training in order to improve the lives of local marginalised communities, with the establishment of new infrastructure. It will integrate environmental practices that are not only sustainable, but also address fair trade export requirements, and generate opportunities by working in partnership with both the public and private sectors.

The ethos of the program is for the municipality to contribute serviced development land and for the private sector to develop a sustainable community and town. The project aims to transform the underdeveloped Grabouw Communities through the strategic development of the town and by implementing a range of projects. It will create sustainable economies & communities using infrastructure as a catalyst for unlocking economic development opportunities and education as a catalyst for youth empowerment.

44. Ruhuhu Irrigation development

Tanzania

The Ruhuhu Irrigation development project involves the development of 4,000 hectares of irrigation on the left and right banks of the Ruhuhu River and the construction of a mini-hydropower facility for powering irrigation operations as well as domestic and business use. The irrigation facilities will improve food security and the capacity of the local community to generate income. The project also aims at improving access to energy and affordable electricity as well as to enable investments in agribusiness, tourism and industry in the area. The expanded scheme would benefit about 8,000

households, with each household holding about 0.5ha of land. A key component of the project will be the increased production of 3 target crops (paddy rice, maize and vegetables) and developing linkages with urban markets for the financial sustainability of the project.

The overarching objective of this project is to improve the livelihoods of farmers in the region and to create an institutionally and financially self-sustaining system of irrigation. The key outputs of the project are: (1) Irrigation infrastructure for targeted smallholder farmers in the Lituhi and Manda wards; (2) Linking farmers in these wards with markets to sell their produce; (3) Training and capacity building for private and public institutions involved; (4) Development of mini-hydropower infrastructure; and (5) Improving productivity of targeted crops. Linked to these outputs, the project is expected to achieve the following outcomes: (1) Improved irrigation water management practices adopted by smallholder farmers in the irrigable areas of Lituhi and Manda wards; (2) Increased crop yields and productivity for participating farmers in the Lituhi and Manda wards and (3) Improved access to clean electricity for the rural community in the Lituhi ward.

45. Kikonge hydropower generation and distribution development

Tanzania

The Tanzanian Power System Master plan highlights the critical need for immediate supply enhancement and particularly the need for backup to existing projects with seasonal storages that are unable to provide supply in the dry season and during droughts. In addition, the villages in the Kikonge project area are not connected to the TANESCO grid, and rely on insufficient diesel generators and solar systems.

The Kikonge hydropower generation and distribution development project will involve the large-scale generation of electricity with the potential of an annual average supply of 1,268 Giga-Watt hours (GWh) in Tanzania. The Kikonge hydropower plant (HPP) will be connected to the Tanzania Electric Supply Company's (TANESCO) national grid system through a transmission line to help in securing a more reliable electricity supply to consumers throughout Tanzania. The project will incorporate a large dam and storage reservoir, which will provide river regulation and flood alleviation. The Kikonge HPP is part of a broader multi-purpose dam scheme in the region incorporating the hydropower component and an irrigation scheme, amongst others.

The aim of the Kikonge HPP project is to meet the electricity supply needs of Tanzania through a new facility designed with climate resilience objectives. The overarching outcome of the hydropower plant development will be increased power generation and connection of rural households to the national power grid. It will mitigate climate impact through a regulatory storage reservoir on the Ruhuhu river for reliable year-round flows, ensure the continuous engagement with local communities for a demand-driven resettlement plan, and produce significant overall eco-

conomic benefits. The project's finance structure is designed to include private sector participation, e.g. through PPPs.

46. Self-sufficient Town for Pastoralist Uganda

Karamoja, Uganda

The project seeks to create a prosperous, self-sufficient and affordable town for 450 people in the chronically food-insecure region of Karamoja (North Eastern Uganda), which is, with a poverty rate of 82%, Uganda's most challenged area and the focus of a government action plan.

The proposed town - compact and with low-tech infrastructure – will be deployed for 5% of traditional costs, in half of the area and in a fifth of the time. This affordability and efficiency are combined with an educational, health, business, social, agricultural and governance model to ensure tangible prosperity results. The project will dramatically improve the livelihoods of the community members. Its holistic approach recognises that the success of any community lies in the inclusion and proper management of all its aspects.

Food security will be achieved by incorporating subsistence farming in the town, by collecting storm water, reusing grey water and turning human waste to fertiliser. This will raise crop yields and increase food production. Post harvest handling and storage facilities will be added, and access to water and sanitation will also be increased: rainwater harvesting will provide 57L per person daily (versus the current 5L). Compost toilets will avoid soil contamination and related diseases and create valuable fertiliser. Securing access to markets will raise average household income and establishing land tenure with the help of a master plan will create assets. Education and healthcare will be improved by creating educational space with access to computers and overall quality of life will be increased by incorporating space for interaction and leisure activities.

47. San Pablo District

Mexico City, Mexico

The project aims to increase the quality of life of those who work in Mexico City's Historical District by providing affordable housing near their jobs and improving the main public transportation systems. The strategy will increase the density of housing areas and triple the public and green spaces. It will also continue the rehabilitation process of the Historical Centre renewal program launched in 2000, and close the scheme with a housing project which will enable this area to be sustainable in the future.

The master plan consists of developing 250,000m² of land for residential occupancy, which will include 4,300 homes and 30,000m² for commercial zoning (shops, theatres, restaurants and the like). The required financing will be provided by a master real estate trust. This trust will administer funds through an urban planning agency and Mexico City's Ministry of Urban Development, inte-

grating experts in real estate development, financial operations, public policy, urban planning and architectural design. The team has already been working in the San Pablo District for two years. The project will be 100% financed by private equity firms and has full government support.

GIB Team



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