

“Sustainable Urban Development? Rhetoric and Reality”

Caribbean Urban Forum 6



Suriname

Book of Abstracts

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Sub-theme 1: Sustainable Urban Development

Quickscan Opportunities and Constraints: linkages between Energy Transition and Spatial Planning in Suriname

Chiquita Resomardono (EnergieBedrijven Suriname) and Ria Jharap (Anton de Kom University of Suriname)

Suriname faces adverse impacts of climate change on her ecosystems, food security, human health and coastal settlements. Several adaptation and mitigation measurements are used to avoid the severe impacts of climate change. Renewable energy (RE) sources play a role in providing energy services in a sustainable manner and, in particular, in mitigating climate change.

Our National energy provider, Energiebedrijven Suriname (EBS), is currently in a transition phase: from a standard energy provider to a sustainable energy provider. Its recent activities underpin this saying: the EBS is promoting Energy Efficiency in buildings and residences, citizens are encouraged to apply solar panels and the EBS is in the process of conducting studies to provide clean energy from solar and wind. Also, end of May 2016 their first hybrid power plant in Pokigron/ Atjoni will be a fact.

Working towards sustainable energy and its facilities has implications for the spatial planning of our country! The use of energy technologies like solar panels is changing the face of residential and office buildings. Wind energy and biomass lead to changes in the landscape, for example, through the construction of wind turbines and digesters and through the cultivation of biofuel crops.

Integrated spatial vision can open new opportunities for combinations with other functions (such as forestry or energy crops) and to minimize and offset any negative spatial effects.

As the only energy provider in our country it is necessary to think about this. What is the vision of EBS and the government of Suriname in the provision of (clean) energy? To what extent can the EBS ensure construction of energy facilities in a sustainable way so to enhance its land use and minimize its impact on people and the environment?

Many of the measures needed to achieve the energy objectives of the EBS, have consequences for the spatial planning of Suriname. This paper is about a quickscan about the linkages between energy transition and spatial planning to identify constraints and opportunities for achieving the energy targets.

Measured and Perceived Sound and Air Quality Impacts of Piarco International Airport on its Environs

Renaldo Lewis and Prof. Valerie Stoute (University of Trinidad and Tobago)

Airports have evolved to become a vital national resource as they play a key role in facilitating national, regional and international commerce. Despite the economic benefits, airport operations have the potential to negatively impact the health, property values, and quality of life of a wide variety of stakeholders. Identifying the environmental aspects produced by the activities of an airport and the vulnerable populations and assets on which they impact is critical for the development of management policies. Treating the Piarco International Airport as a black box, three cycles of

physical measurements were made at thirteen sampling locations within a study area of nine (9) surrounding communities to determine baseline sound and air quality levels. In addition to the physical monitoring, a survey was administered to residents and workers in the study area for which they commented on health issues, their perceptions of nuisances from the activities at the airport and their concerns about quality of life impairment, along with the appeal of certain offered solutions to air and noise pollution impact problems in the area. Using multivariate statistical analysis, the airport's activities were estimated to be linked to higher sound, temperature, and carbon monoxide values and lower relative humidity values in some nearby communities on the flight path of planes taking off and landing at Piarco. Respondents to the social impact survey showed some concerns about the environmental impacts of Piarco Airport's activities; however they were far less concerned about impacts on their own quality of life. Based on the findings and global trends in land use planning in and around airports, information and communication must be seen as critical elements to promote the acceptance of airport operations and/or any expansion of airport infrastructure as well as helping reduce the nuisance to people annoyed by aircraft noise or other emissions.

Optimization of electrochemical storage in smart cities

Francesco Muzi (University of L'Aquila) and Massimo Pompili (Sapienza University of Rome)

It is well known that renewable (wind and solar) distributed sources are normally random and intermittent. That is why at certain times of the day the Distribution System Operator (DSO) of a smart grid may have to handle energy surpluses that are difficult to control and could eventually undermine the whole operation of a local distribution system. This problem can be solved, of course, using properly dimensioned, efficient storage systems also to be used for automotive purposes. The issue may affect either one individual city zone or more complex systems, consisting of multiple urban zones. In this work, a storage control system is described with a management model consisting of a number of smart buildings interfaced with a smart grid DSO. In order to better identify the model representing the behaviour of a storage battery, reference is to be made to charging and discharging processes, which do not take place simultaneously and therefore allow the requested models to be defined independently. The proposed automatic management system was analyzed through numerical simulations, which are also reported and commented.

Resource Mobilization: A key element in participatory implementation of Local Economic Development – The case of the City of Belmopan

Ralston Frazer and Ms. Keyla Magaña (Belmopan City Council)

Participation in the implementation of Local Economic Development (LED) is a pillar to ensure its sustainability. The LED process seeks to include meaningful participation from local actors, who serve as bastions in the materialization of the community LED goals. Active participation leads to the direct involvement in mobilizing local and international resources available in the capital City of Belmopan. As the administrative capital of the country, the University City, its key geographical location, blooming private sector, human resource as well as its social diversity the City has the potential to become a pioneer of LED in Belize. The comprehensive use of its resources is a primary tactic to carry out successful LED initiatives. Throughout the development of the Resource Mobilization Strategy, potential partners were aligned to the various LED goals based on their specific mandate. The municipal engagement process was designed taking into consideration the characteristics of the

various entities, such as the business community, national and international agencies, and embassies. The building of solid relationships was based on the understanding of mutual and public benefits. Private and public involvement and ownership, with municipal guidance to facilitate the progress of LED, has resulted in more resources being harnessed for the overall achievement of economic growth. Continuous use of local resources is expected to enhance commercial activity, and empower citizens for economic progress.

The Participatory Slum Upgrading Program (PSUP) as a link between policies and program implementation

Hanne Vrebos, Katja Dietrich and Kerstin Sommer (UN-Habitat)

The Participatory Slum Upgrading Programme (PSUP) is a program politically supported by the Africa, Caribbean and Pacific Group of States (ACP), financed by the European Commission (EC) and implemented by UN-Habitat. Since 2008 the program is being implemented in the Caribbean with to date five countries: Antigua and Barbuda, Haiti, Jamaica, St. Vincent and the Grenadines and Trinidad and Tobago. Implemented by national and local governments the program raised awareness amongst all stakeholders on the issues of slums, build capacity of all urban stakeholders, triggered political commitment for slum upgrading and prevention and served as platform to bring urban stakeholders together. Through the PSUP methodology slums are looked at in their connection to the whole city. The Urban Profiling Process and well as the Action Planning for Project Implementation brought out common challenges faced by Caribbean countries such as the issue of (1) urban vulnerability of slum dwellers to climate events, (2) high youth unemployment rates affecting the urban economy of the city overall and (3) urban safety and security including drug related crime, high offender rates amongst the youth and interfamily violence. Further the analysis identified an abundance of available legal instruments to address issues of slum upgrading and prevention however where they are in place, there is often an inconsistency due to a lack of implementing programmes following the policies and a lack of available data to support measuring results. This gap is taken up by PSUP whereby the program is introducing easy adaptable data collection methods and indicators as well as identifying the bottlenecks of the policy and legislative framework in place. Equipped with these tools a strategy for slum upgrading and implementation is formulated serving as practical plan for policy implementation. As the participation of a variety of stakeholders is key in advancing from policies to implementation PSUP is following a rigorous participatory approach from the beginning with joint decision making by the different government bodies, academia, CBOs and NGOs, the private sector as well as the community. One of the participatory elements is the PSUP Country Team which is driving the process. PSUP has triggered in the Caribbean a change of mind-set which is for example visible in the announcement of the Government of Jamaica to develop a Squatter Settlement Policy as well as in Haiti with the inclusion of extensive slum data in the City Development Plan for an integrated future planning. In this spirit PSUP was a program addressing the MDGs and is a tool to fulfil the Sustainable Development Goals, in particular SDG 11 “Make cities and human settlements inclusive, safe, resilient and sustainable” with the Target 11.1 “By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums” as well as other goals (Goals 1, 6, 10, 16, 17). PSUP will be expanded in 2016 with a more comprehensive mandate on pro-poor urban development as well as addressing more countries whereby the Caribbean should profit from this global program.

Managing Rapid City Expansion, twenty miles away from one of the toughest slums in Haiti

Louis Edouard Jadotte (UN-Habitat)

Since 2010 the northern edge in the city of Port-au-Prince has become a site of rapid new settlement and urban development following the January 12th earthquake. The area, generally referred to as Canaan, had by mid-2013 a population of 21,000 new households and has the country's greatest concentration of new housing construction, with a mix of income groups constituting the new community. It started as a Temporary Camp for about 1000 families set up in July 2010 by the international community but quickly expanded after the government declared a vast area as "Area of Public Interest". This sparked a massive land invasion of the area, which has now all the characteristics of a self-organizing emerging city, with private water and electricity supply, a hierarchical road network and private schools and health facilities. As part of the post-disaster response the focus of technical assistance in Haiti had been on damaged neighbourhoods or new project development. However it was quickly apparent that the urbanization process in Canaan did not fit into either category and had had negligible planning, housing, construction or community development assistance to date. The Government of Haiti requested technical assistance to ensure broad based community engagement, the prioritization of needs and investments, and the adherence to feasible strategic plans and principles for implementation. How do we prevent the emergence of an immense slum, miles away from the nearest Municipal services? How do we promote an inclusive, resilient and sustainable urbanization in an emerging city, formally split within three adjacent Municipalities? The present article describes the approach developed in cooperation between multiple Government Entities, and multiple specialized NGOs within tight time frames. Strong community and Municipal Involvement, Strategic Urban and Structural Planning, Alignment to Government Policies and UN-Habitat Best Practices, produced a unique mix of effective response to the Legal, Fiscal and Technical challenges, on the way to promote a "right to the city".

The role of Urban-Rural Linkages in enhancing sustainable urbanization in small islands states

Remy Sietchiping and Jackson Kago (UN-Habitat)

Small islands States are good examples of the intimate relationship between urban and rural areas. Their compactness, factor of distance and contiguity of human settlements place small islands at the vantage points for enhancing urban-rural linkages. Many islands States have a range of small and intermediate cities that play a critical role in strengthening the systems of cities and human settlements because they are more accessible and connected territory and people and also act as a bridge between rural populations and large cities. However, small islands States in the Caribbean for instance face many challenges facing when enhancing urban-rural linkages such as climate change, food security, mobility and migration, flows of products and services, etc. This paper highlights the opportunities and challenges in strengthening the urban-rural linkages in small island states. The paper pays particular attention to ways in which small island can better manage urbanization, attract investment and meet the demand for housing, land, infrastructure and basic services, create and retain jobs. A review of a range of cases shows that some intermediate cities in small island sates often find it difficult to diversify and strengthen their economies, retain capital and attract investments. This paper will firstly present the main findings of the literature review on how urban-rural linkages play out in small island sates. Secondly through some case studies, the paper will explore the role of urban-rural linkages in achieving a balance regional development, alleviating rural poverty and achieving sustainable urbanization with particular emphasis to small and intermediate cities. Finally, the paper will highlight policy directions to enhance urban-rural linkages in small island states.

Towards sound land use planning in Suriname?

Nancy del Prado, Christine Toppin-Allahar, Henk Lutchman and Sofie Ruyschaert (WWF Guianas)

Economic developments create a proliferation of competing demands on the rich natural resources in Suriname. The lack of sound land use planning (LUP) makes it difficult to critically control and mitigate the environmental and social impacts of emerging extractive sectors in the country. Although the government recognizes the need for spatial planning to use its territory properly, Suriname has still many steps to take compared to other countries in the region. We did an exploratory assessment on the status of sound land use planning in Suriname (including stakeholder analysis and legislation review) to identify gaps and challenges. The outcomes of this analysis were confronted with best practices and lessons learned in similar countries. Finally, we developed a roadmap to support sound LUP, based on an inclusive multi-stakeholder approach. This roadmap makes clear which steps needs to be taken, including capacity building, coordination, institutional strengthening and priority setting.

Within Our Land: Humanising Physical Development

Ivan Laughlin

Over the past 40 years my work has been fundamentally related to land and settlement and therefore to people's lives and what has emerged for me is the reality that: how you shape the land so will you shape the civilization. That reality has emerged essentially from those human settlement initiatives and development strategies I have explored at home in Trinidad and Tobago, in the Caribbean and further afield and they represent tangible experiences of other possible ways of seeing and of proceeding. I am not an academic. In essence I am a human settlement practitioner and when I see the current approaches to development that are changing the face of these Islands especially that of Trinidad and Tobago where so often the development parameters are from without not from within I ask myself - "are we losing the Caribbean?". If we are then we need to explore the answers. I say this because I know that - "community viability is one of the main prerequisite for sustainable development" and for that to be achieved it is always necessary to listen to the voices from within. And doing so may require paradigm shifts. My story of practical approaches to human settlement development suggests simultaneous planning and implementation approaches that could underlie those shifts. It is never too late to discuss and explore new horizons of enterprise. Accordingly my paper will summarise five human settlement initiatives:

- The Human Settlement Concept – explained in a conceptual format.
- Montserrat
- Grenada
- Trinidad & Tobago

Complex organizing structures of the Javanese society in Paramaribo

Marciano Dasai (AdeKUS)

The city of Paramaribo has gone through various stages of development where not only changes have taken place in the society's social and cultural processes but also in the physical environment. Built space can be considered as the physical result of social productive processes. The capital city of Suriname is perceived by the study as an open complex urban system containing a human-centred organic whole of extremely close connections, having the complicated characteristics such as multiple elements, multiple layers, openness, dynamic characteristics, and self-organization. The objective of

this research is to explore how the descendants of the Javanese Immigrants as collective group within a bigger society have influenced the physical environment of Paramaribo. By using the complex systems theory the study describes how the living environment is considered accordingly so that proper planning and policy construction takes into account the accretion and accumulation of successive layers of collective activity and the growth of the urban area. The complexity approach has enabled the study to describe how physical structures have emerged from social interactions within a multi-ethnic society and how a specific ethnic group collectively contributes to a city's urban complexity. These contributions can be used to strengthen the qualities of the different areas through bottom-up approaches. Engaging the prevailing social dynamics rather than confronting them will seize opportunities and bend threats in producing effective structural plans for Paramaribo.

Durban Backlands: speaking for the people, through the people

Mannon Dennison, Nigel Erskine and Orin Boyce (University of Guyana)

By United Nations standard, the Durban Backlands area of Georgetown would be considered a slum development, as it is a continuous settlement where inhabitants are characterized as having inadequate housing and basic services. It is a community stricken by abject poverty, neglected by both the municipal administration and successive national governments and is being enveloped by rapid development taking place at its doorstep. At the policy level, the Central Housing & Planning Authority is confronted with a public policy dilemma of not wanting to be seen as endorsing illegal land occupation or evoking open conflict with the squatters with all its political ramifications, as such issue often does. However, urban planners as posited by Paul Davidoff need to play the role of advocates and ascertain what can be done to represent the interests of the under-privileged and marginalized in depressed inner city areas. Embracing the theoretical postulates the researchers prepared a development plan focusing on improving the social and environmental conditions of the residents of Durban Backlands. This research project entailed visits to the settlement and interactions with the population on various options to alleviate poverty and improve social and environmental conditions. Participatory planning and a bottom-up approach was the methodology utilized to acquire data for the research project. Emerging from the research are two proposals. The first proposal looks at developing the area in order to accommodate the residents on the existing site, the second focuses on the best route for relocation. Both proposals consider the ramifications of accepting, absorbing and recognizing the residents as a part of Georgetown or simply moving them to another location. Also, the views and concerns of the people will be fused into the creation of these proposals.

Wild West Paramaribo growth

Philip Dikland (KDV Architects)

Built heritage in Suriname dates back to the first occupancy by Amerindian peoples, approximately 10.000 BC. They left us a heritage consisting of many artefacts, of spiritual tokens carved in stone, and of ancient villages on manmade mounts near the ocean. Most of it is now covered by the jungle, and must still be re-discovered. None of it is protected by law. In the 17th century European colonization began. A totally different heritage was created, consisting of European-style wooden buildings and towns, and large areas of abandoned estates with ruins of buildings and production machinery. In the same period, part of the slave population escaped slavery and founded their villages deep in the bush, well hidden and organized according to their own African cultural roots, built with African styling and craftsmanship. Many of those so called bush-negro villages exist until today. The built heritage of those who remained enslaved is very hard to detect, as they could not build their own

housing according to their own taste. They were forced to live in European style shacks. But after the abolition of slavery, they started to build their own houses, based on European tradition, but with many specific - mostly colourful - additions to it, reflecting their own "creole" taste. A reasonable part of the European colonial heritage is now protected by law. None of the bush-negro heritage is yet protected, and only a small part of the creole To replace the slaves, Chinese, Indian and Javanese workers were imported. Many of them chose to stay in Surinam, and enriched the built heritage with their asian-styled mosques and temples. None of it is yet protected.

Sub-theme 2: Local governance and Decentralization

Empowering Local Government and Establishing a Dedicated Ministry of Rural Development

Rodney Ramlogan, Aisha Donaldson, Kyana Bowen and Sean Sooknanan (Ministry of Rural Development and Local Government, Trinidad)

The newly formed Ministry of Rural Development and Local Government is in the process of defining a policy framework in addition to local government's transition process. The policy framework for rural development will focus on the enhancement of rural communities through the diversification of their economic base to improve the quality of life of residents and the protection of distinctive environmental landscapes. The exploitation of land-intensive natural resources such as agriculture, has been the historic approach for rural development. However, the new direction of rural development encompasses an extensive range of developmental goals. In the Ministry's attempt to achieve sustainable rural development, it is intended that many indicators such as, Information and Communication Technology (ICT) Access, Banking and Commerce, Utility Services, Education and Health, Employment and Transportation are incorporated. Emphasis will also be placed on Local Economic Development (LED) in particular, to the enhancement of the quality of life. It could be argued that rural development and local government are mutually exclusive sectors. However, this paper proves that local government provides the enabling infrastructure for rural development. In addition to devolving the functions of the Ministry to Municipal Corporations (MCs), the review of boundary conflicts among MCs, stakeholder consultations, the review of the Municipal Development Plans and the preservation of the natural heritage and culture fabric of the respective rural communities will also form part of the MRDLG's work programme for the 2016 fiscal year. The proposed Ministry of Rural Development (MRD) will ensure rural development is consistent with national policy and that there is collaboration among key actors for the implementation of sustainable rural development.

Local Government and Decentralization in Saint Lucia

Felix Finisterre (CARILED OECS Sub-Regional Coordinator)

In 2015, the Government of Saint Lucia through the Ministry of Social Transformation, Local Government and Community Empowerment presented the Draft Local Authority Act of 2015 to its Constituency Councils for consideration. The Draft Bill will be an enabling instrument that will frame the way forward for more engagement and leadership by Local Government staff. The Bill is also meant to empower the Constituency Councils in the areas of strategic planning and implementation, revenue generation and resource management. Finally, the Bill looks at the appointment of council members, and the roles, responsibilities and powers of local authorities. The Bill is part of the

Government of Saint Lucia's initiatives to decentralize development initiatives, and is an adaptation of the 1947 Local Authority Ordinance Act and the existing 2012 Constituency Councils Act. This paper will outline the process undertaken by the Government of Saint Lucia, through the creation of a transformation working group, the engagement of external funders to support the drafting of the legislation, and the role of ongoing local development initiatives to support the recommended policy changes by creating evidence based policy recommendations. The presenters will outline the next steps that will follow the initial consultations, and outline challenges faced and successes during the process towards decentralization.

Appropriate governance structures for moving to sustainable urban management both at the national and municipal level

Barbara Elrington (Belize City Council)

The Belize City Council's Local economic development Unit was birthed out of the joint efforts of the Belize municipality and CARILED/FCM. It began its operations on April 1, 2016 following the municipality's successful adoption of the CARILED Belize City activities as an integral part of its senior level decision making operations. In January of 2013, the work of developing business-friendly environments in which micro-, small- and medium-sized enterprises could prosper using a demonstration case was embraced with much enthusiasm by both entities and the result was far-reaching. Not only did it provide a viable business enterprise with 28 businesses having a catalytic effect on other new businesses start up; it also established a comprehensive framework for interfacing with people across different levels of government, socio-economic and institutional contexts as well as the opportunity to exploit synergies between technical assistance and training locally and internationally. This paper will present this framework as a necessary and viable complement to traditional strategies for ESME(s) start-up and sustainability as well as examine how the approach could be dynamic in stimulating change and progress when applied to the wider context for the provision of services to attain social, economic and environmental standards for sustainable communities.

Sub-theme 3: Sustainable transportation solutions

Road Traffic Congestion in Trinidad and Tobago: Towards a Systematic Framework Based on Interdisciplinary Social Scientific Insights

Dr. Godfrey St. Bernard (The University of the West Indies, Trinidad)

Road traffic congestion is not a recent phenomenon in Trinidad and Tobago. It has been characteristic of highly urbanized domains, particularly in Trinidad during the early post-independence years and is reflective of rapid growth of the national population during the 1930s, 1940s and 1950s. These were periods of rapid urbanization and modernization in a colonial society in the early post-independence era. During the first two decades of the 21st century, the problem has intensified due to an in-built population growth momentum despite evidence of retarding growth rates. Road traffic congestion has negative impacts on national productivity levels, personal health, environmental sustainability, psychological states of road users; all of which is further exacerbated by ill-informed interventions. Accordingly, the paper is predicated on the notion that road traffic congestion is a population problem that ought to be reduced by drawing upon demographic and sociological insights that interact with

temporal changes in national economic fortunes. It argues that these insights have hardly ever been embraced as means towards arriving at pro-active solutions for reducing road traffic congestion. Instead “plaster on sores” approaches and “short term” alleviation interventions have been preferred options that have intensified the problem. The paper provides historical accounts of national demographics, temporal patterns of urbanization, evidence of social transformation in tandem with national economic trends, all of which, are associated with increased levels of motorization and traffic congestion on roadways in the nation’s main urban domains. Population ageing and declining population size will characterize the demographic reality of Trinidad and Tobago in periods beyond 2025, yet we continue to ignore demographic and a sociological imagination in our quest to ease traffic congestion. In conclusion, the paper offers some theoretical and policy-relevant insights that promote pro-active responses in accordance with prospective realities.

Sustainable Road Building Materials: The case for Bartica, Guyana’s newly established township

Lawrence Mentis (University of Guyana)

Sustainable road building design and construction is the practice of creating structures and using processes that are environmentally responsible and resource efficient throughout the life cycle of a road—from selecting the material, alignment, location, construction, operation, maintenance, renovation, and finally, deconstruction (citation needed). This paper explores the use of resources within the community in the production of road networks, specifically, the likelihood of developing clay brick roads which require the use of less fossil fuel both in implementation and maintenance and the use of sand in the production of pavement blocks. The newly formed township of Bartica in Guyana serves as the backdrop for the development of more sustainable road networks and the following topics will be more thoroughly discussed:

1. Locating and mapping areas of clay and sand deposits in Bartica
2. Establishing current and future road networks based on land use policies
3. Comparing the cost of a clay brick road with the existing asphalt surface road
4. Comparing the environmental footprints of a clay brick road with an asphalt surface road
5. Exploring the repurposing of excavated sites as temporary landfill sites
6. Exploring the use of sustainable energy to drive clay brick kilns
7. Exploring the use of sand deposits in the community in the production of pavement blocks

The paper concludes that the use of sustainable road building materials must become an integral aspect of sustainable transportation solutions especially in the Caribbean urban context.

Public Transportation as a solution for the traffic congestion in Paramaribo

Mr. Viresh Bharosa, Rashudi Deira, Rowina Chotkan, Kimberly Ansoe, Femia Wesenhagen and Angelika Namdar (Anton de Kom University of Suriname)

Transport is a vital part of the modern society and economy. To meet the transportation needs of the present while passing on a better world for the future generations, it is necessary to expand the transportation network's capacity while simultaneously reducing the environmental footprint of the system. Despite the small population of Suriname traffic congestion is very common. This requires an urgent approach of the congestion issues. Therefore the accessibilities of places and alternative transport modes should be improved, while minimizing impacts on the environment. This paper urged transportation policy makers to adopt the so-called "triple bottom line" approach to sustainability by evaluating performance on the basis of economic, social, and environmental impacts and allocating equal consideration to these driving forces. The specific elements of the triple bottom line will be used as way points to access the problem: robust economic growth, improved quality of life for all citizens and better-than-before health of the environment. Strategies which can possibly lead to solutions in Paramaribo city: (a) implementing sustainable transport systems, (b) approval of our environmental law in order to have the necessary legal support, (c) replacement cars with public transportation and (d) promoting walking and cycling. The expected conclusion is that new solutions for slow traffic flow and sustainable mobility are needed.

Designing an efficient bus transportation system in Suriname with GIS, the case of North East Paramaribo

Ms. Agatha Cederboom (Anton de Kom University of Suriname)

The public bus transportation topic is an urban issue that needs to be shaped. The transfer options with the current public bus routes are very restricted. Most people have to go to the center of Paramaribo to take a second bus to their destination, even though Paramaribo is not the final destination of the traveler. This means a loss of time and energy for the passenger, but for the city it also has negative effects such as air pollution, traffic jams and a lack of parking facilities. This presentation analyzes the current bus routes in greater Paramaribo and calculates their overlaps with GIS, while it develops alternative routes, which are more efficient and better for both the traveler and the city

Transportation issues in greater Paramaribo. Results of a research project done for the Ministry of Transport Communication and Tourism

Prof. Marten Schalkwijk, Angelika Namdar and Hans Martinus (Anton de Kom University of Suriname)

There are numerous transportation issues in Paramaribo and its surroundings. The Ministry of Transport commissioned the Institute of Graduate Studies & Research (IGSR) to do two studies on the subject. Research for the first study focused on the transport of heavy and dangerous goods. Transport-routes and transport-volumes are examined and recommendations will be presented on best practices and best routes for the transport of heavy and dangerous goods. The second study focused on public transport. This presentation will deal with the issues of public transport. Observations were done in public busses, a survey was done among passengers, and another survey in three communities. Legal documents were studied and discussions were held with stakeholders.

The main results of the study will be presented with recommendations to improve the public transport system.

Sub-theme 4: Local Economic Development for the Caribbean

PLANS, EXECUTION, WINS & LOSSES: Formalizing and promoting the informal business sectors in Trinidad and Tobago

Paul Hans, Ana-Regina Soochit and Jillian Quashie (CARILED)

Local Economic Development (LED) is a strategy which involves facilitating, promoting and ensuring community economic development in order to secure opportunities for economic and business development and increase local employment, with the objective of reducing poverty within the community. Such strategy focuses on the assets at the local level which vary amongst communities. LED is a main principle of sustainable development in which local governments can promote sustained inclusive and sustainable economic growth, full and productive employment from the bottom up through LED strategies. The Ministry of Local Government, Trinidad and Tobago has undertaken the path of formalizing local economic development in six municipalities in Trinidad by appointing six LED officers within the Municipal Corporations and this is part of the Local Government's White Paper on Transformation and Modernization. Furthermore, the LED officers are involved in strategic LED transformation projects in areas such as; community agro-tourism, agro-processing, marine-protected areas, micro-financing, human resource development/capacity building, marketing, entrepreneurship/business development, heritage tourism and eco-tourism. This paper sets out to share the LED experiences of three Municipal Corporations in Trinidad and Tobago: Princes Town, Chaguanas and Point Fortin. The paper analyzes challenges and lessons learned with implementing LED strategies that aim at formalizing and promoting the informal business sectors within each community. The paper will also demonstrate successes achieved in each of the municipalities and next steps that will be taken to promote local economic development. In this way, the municipal profiles can show plans, execution, wins and losses and next steps to create stories.

Developing the missing middle of the urban system: LED Initiatives – The case of Linden, Guyana

Aletha Connelly (University of Guyana)

In the settlement hierarchy there are various levels of settlements, with each settlement serving varying functions to its residents. The standard concept, while applicable to understanding why people choose to live and work in areas is more suited to the developed world. In the developing world, however, there tends to be a concentration in the capital city (primacy of the capital city) of services and functions and as a result the population. This is supported by Potter and Lloyd-Evans (2014) who note that developing countries tend to have a paucity of middle tier settlements which can offset the pressures faced by the capital city in the urban system. While the capital city is the hub of the country other satellite towns struggle to maintain population figures, economic prosperity; job stability and to meet general sustainable development parameters. Developing countries therefore need to establish strategies and programmes that seek to counter balance the dependence on capital cities. This paper explores Local Economic Development (LED) initiatives in the town of Linden, Guyana. It will explore the existing conditions, the institutional framework, the benefits and drawbacks and the parameters of

success associated with the implementation of the Linden Economic Advancement Project (LEAP) in Linden. The paper will make recommendations and also posits that for satellite towns to develop there must be an emphasis on robust and sustainable transportation solutions, effective resource utilisation and independent ancillary services in order to spread the benefits of development and reduce the primacy of the capital city.

A road map to cohesive, Empowered and sustainable communities

Emil Mc Garrell, and Jason Fraser (Ministry of the Communities, Guyana)

In June 2015, the newly elected Government of the Cooperative Republic of Guyana established the Ministry of Communities (MoC) with the aim of promoting the development of cohesive, empowered and sustainable communities. The new Ministry represents the amalgamation of functions previously carried out by the former Ministries of Housing and Water and of Local Government and Regional Development. The rationalization underpinning this new Ministry derives from the new Government's commitment to fulfilling Constitutional Provisions for devolution and decentralization of resources to the Local Democratic Organs (LDOs), which must safeguard and sustain the social and economic transformation of communities across Guyana. The Ministry's key objectives include:

- Promoting local economic development;
- Empowering and equipping local democratic organs;
- Support the Strengthening of Communities' Disaster Risk Management;
- Instilling integrated waste management;
- Promoting integrated water resource management;
- Providing quality and affordable housing solutions;
- Strengthening policy implementation and management.

This presentation will examine how the reform will assist the Ministry, in collaboration with Local and International partners, to focus on strengthening the capacity of the LDOs for the provision of services to attain social, economic and environmental standards for sustainable communities.

The Revision Experience of the National Land Policy of Saint Lucia – An Avenue to Raise Public Awareness to the Economic Benefits of the Policy

Joanna Raynold Arthurton, Bernella Charlemagne and Jasmine Weekes (Ministry of Physical Development, Housing and Urban Renewal, St. Lucia)

Land is a key resource for achieving economic growth and community development within small states like Saint Lucia. The management of this resource must thus be carried out within the context of sound and sustainable environmental policies and practices, which promote inter alia, a positive cultural relationship between people and land. The recognition of these realities have therefore led governments to formulate policies aimed at optimizing the use of land and the maintenance of its value. In 2007, following an extensive process of research

and consultation that began in 2002, Saint Lucia's Cabinet of Ministers adopted a National Land Policy (NLP) that gave broad guidelines for the administration and management of land in the country. Within that framework, a number of measures, actions and instruments were identified; some of which have been introduced and implemented in the past few years. At this stage in national development, and taking into account global changes and new challenges such as those posed by climate change, trade liberalization and the global financial crisis, this Policy had to be updated and made more relevant to current and future needs. Thus from June 2014 to present, there has been an ongoing consultative process to facilitate the revision of the 2007 Policy. This has involved, among other activities, a review of the existing policy and other relevant documents, an assessment of the impact of the policy; a large number of individual interviews; and focus group sessions using popular theatre as one of the means of message transfer. This consultative process has been undertaken with the assistance of a National Land Policy Committee (NLPC) which was specifically established to provide technical support to the process. Some of the main questions posed by participants during the consultative process focused on how the policy would benefit them as individuals and/or at the household and community levels. Participants also expressed a large measure of cynicism concerning the actual implementation of the policy. In light of these responses, the paper will examine, assess and document the mechanisms for public sensitization that were utilized during the policy revision process; (if necessary) develop additional mechanisms to enhance the existing process; and explore opportunities which the NLP presents for socio-economic development at the community level. This paper is thus intended to present the Ministry of Physical Development, Housing and Urban Renewal (Saint Lucia) with a strategic response to addressing the concerns raised about the revised policy; and a mechanism for continued efforts to raise public awareness to the provisions of the same.

How to attract new development

Dr. Annemarieke Bakx – Loth (Re-creatio), Maatren Bosman (Maartenbosman Dutchplanners) and Angela Soerodikromo (Homeland Real Estate NV)

For Surinam and the Caribbean to attract new developments, they'll have to invest in projects with globally relevant values. Of importance on the level of urban development is a shift towards a circular urban development. Developments must connect to existing structures and add value to the people who actually live there. No long import processes of raw materials, but use of products and raw materials from the immediate vicinity. This stimulates the local economy. New developments have added value for urban – and therefore often culturally and historically valuable – tissue. Simultaneously the same time global parties want to feel at home and take their traditions from other cultures. It's important to take note of that and get into conversation. Overall, local governments do not or have trouble to manage the rapid urban growth in the right direction. Reasons are: lack of geographic data, lack of spatial planners, limited approved planning framework, arbitrary policy (Neale, 2010: 5) In urban development this calls for to a broad valuation of real estate. Everyone wants his property to generate the optimum yield. But nowadays you can't only think about money and your own real estate. That's why we work with a broad value approach in which we not only identify the monetary value, we also map a buildings socio-political, cultural, historical and ecological values interacting with it's context. Addition to factual knowledge of various experts crowdsourcing delivers useful information. Sustainable area development means finding balance between urban development and economic, social and environmental issues. This requires inspiring examples and promoting projects at sustainable levels. An integrated approach to projects, cooperation and knowledge sharing are

important. To that end, the creation of a knowledge platform as EnergySprong is desired, which brings together supply and demand and close cooperation in the chain leading to a sustainable society.

Home Based Economic activities in Blauwgrond

Roshana Ishaak, Merushka Dhawtal, Madhavi Hardajal, Janice Kartowirjo, Femia Wesenhagen and Angelika Namdar (Anton De Kom University of Suriname)

The Caribbean Local Economic Development (CARILED) is a six year project to develop and test models of Local Economic Development (LED) across the Caribbean. CARILED is also going to be introduced in Suriname in 2016-2017. The purpose of the CARILED is to create jobs in order to reduce poverty and to ensure the economic growth of the country in the Caribbean. Except this CARILED also integrates gender policy, environmental protection, communication & outreach, knowledge management and program-coordination. One of the research area's within this project is the role of Home Based Economic Activities (HBEAs) within the economic development in the countries. HBEAs are a phenome in Caribbean cities. Households generate goods, incomes or both which they can use to build assets, increase well-being and reduce levels of vulnerability within their households. Within this paper it will be studied what the success of the CARILED project was within the 6 pilot countries and how the small business can be stimulated and guided to successful entrepreneurs. In order to get insights in the existing situation in Suriname, the area Blauwgrond was selected as case study. The purpose of this study is based on a determination of how many households carry out home activities in Blauwgrond, a residential area where there are a lot of small economic activities going on. Within this study it will also be considered how the entrepreneurs should be guided to sustain their activities. The research method which will be used is interviews with the residents of Blauwgrond and literature study. The expected results of this research is to have insight in which extent HBEA's contributes to the incomes of the households in Blauwgrond and to which extent it contributes to prosperity of the households. And which strategies can be used to regulate the activities in a sustain way.

Achieving Sustainable Urban Development: An integrated framework of local governance and local economic development

Clive Edwards (Ministry of Local Government & Community Development, Jamaica), Marsha Henry-Martin (Ministry of Local Government & Community Development, Jamaica) and Rowhan Blake (Clarendon Parish Council)

Local Government has a principal role in ensuring sustainable urban development and global trends reinforce the need for effective local government if developing countries, particularly, Small Island Developing States are to experience sustained development. This paper focuses on the ability of local government authorities to facilitate sustainable urban development in their management of cities and towns within an integrated framework of governance and local economic development (LED). The Sustainable Development Goals, 2015 require local authorities to actively participate in national development objectives and strategies, assuming the responsibility of leading the development of towns and cities. Achieving sustainable urban development will therefore require a local government system, enabled by the necessary institutional arrangements for delivering quality services in urban areas. Effective development planning with LED as one of the pillars is significant to the process of urban sustainability. Jamaica and its Caribbean neighbours exhibit some commonalities in the structure of their economies and the concentration of urban centres in coastal areas; other similarities include the decline in economic returns from the export of primary commodities and the need for these

economies to benefit from initiatives which will mitigate current vulnerabilities. The CARILED Project as reflected in the Case Study of the Clarendon Parish Council and its implementation of LED initiatives through collaboration between technical staff, elected officials and civil society is an example. Similarly, the IDB has included in its implementation of the Emerging Sustainable Cities Initiative, the recognition of local government as the main implementer of change, using a LED pillar. It is however, the governance framework that creates the space for an effective LED initiative; Jamaica's local governance model, which includes legislation giving local authorities the responsibility for local sustainable development and management of urban centres through collaboration with a broad base of stakeholders, is such an example.

Sub-theme 5: Professional Planning Practice, Education & Training in the Caribbean

Living labs as leverage for a sustainable transition: Overview of student research in the Caribbean context

Dr. Bart Janssens and Dr. Tom Coppens (University of Antwerp)

As there has been an increasing awareness of the severity and consequences of global warming over recent decades, there has also been increasing efforts to mitigate and adapt to climate change. Despite sustainable transition is collectively agreed upon, tangible actions in the Caribbean context are limited. Unsustainable daily practices in the built environment are usually embedded in wider socio-technological systems that are resistant to radical change and innovation. Transition management approaches and instruments such as living labs provide a new orientation to societal change. It aims for the creation of sustainable innovative practices within socio-technical niches, which may have the potential to upscale to wider systemic transformations. In recent years, the architecture students of the Faculty of Design Sciences at the University of Antwerp have conducted research targeting sustainability within the Caribbean context. A wide range of topics were addressed, e.g. schools, healthcare and campuses. On the theoretical background of living labs, this paper discusses exemplary results of student research. More in specific, research on energy efficient campus design and management is addressed. Regarding the latter, reference will be made to the conducted workshops of the Edulink project. The objective is: in general, to provide incentives to close the gap between 'rhetoric' and 'reality'; and in specific, to increase the awareness of the potentials of existing urban developments, e.g. campuses, for sustainability. The underlying objective is to highlight living labs and transition management in education and training as a 'short cut' towards a sustainable transition.

A KAP Study of Urban Planners in Guyana towards Climate Change

Seon Hamer (University of Guyana)

This study will investigate if Urban Planners in Guyana are adequately prepared to plan urban infrastructure in a way that would lessen the impacts of climate change and ultimately achieve Guyana's sustainable development goals. The level of knowledge regarding climate will also be tested and this will serve as an indicator to determine if the training received has adequately equipped urban planners to be able to create climate smart solutions in the urban environment. The researcher will also evaluate what is currently being done by urban planners with regards to climate change strategies being incorporated into urban planning activities. The attitudes of urban planners towards the whole

concept of climate change will also be investigated. The KAP survey model (Knowledge, Attitude & Practices) will be used to gather the necessary data needed for the study.

Diverse Places, Common Strategies: Guidebooks for Planning

Christopher Wolfe (City of Calgary) and Dr. Larry D.S. Wolfe (Commonwealth Association of Planners)

There are over 30 nations and jurisdictions in the Caribbean (24 English speaking), ranging in population from 5,000 to over 11 million. These nations are diverse in size, ecosystems, economies, political structures, and urban planning practice. As these nations strive to build a viable and relevant planning profession, they can benefit from models from elsewhere. However, such models are rarely transplanted without problems. The Caribbean needs models that address unique Caribbean circumstances and needs. But how will jurisdictions with as few as 3-5 planners develop meaningful planning policies? Some Caribbean-wide collaboration is urgent. Calgary, Canada, is a large northern urban centre, so its practices are only sometimes relevant to the Caribbean. An exception is the Community Planning Guidebook. In the past, every new neighbourhood plan in Calgary had some identical policies that were copied from one plan to another. These policies addressed open space, utilities and servicing, storm water drainage, transportation and transit, walking and cycling, housing, and other issues. The City developed the Guidebook to reduce this redundancy. Now, local plans start with 75% of the common policies, and work on adapting the local plans for the remaining issues unique to individual communities. The now process is easier, faster and more consistent across local communities. No one is suggesting Calgary's policies will all be relevant to the Caribbean, although some may be. However, we propose the Caribbean Planning Association mandate the establishment of a model planning guidebook for Caribbean communities. This would parallel work of the Commonwealth Association of Planners, which is reviewing model legislation for planning across the commonwealth. The Guidebook could be adapted by each country and for each community, but much of the redundancy of developing policies could be alleviated. This would also make it easier for national governments to devolve planning processes to local entities.

Sub-theme 6: Unrealistic and unsustainable housing and settlement upgrading programmes

Is Low Income housing a Prerequisite to Long-Term Sustainability and Poverty Alleviation for Depressed Communities?

Linda Johnson-Bhola (University of Guyana)

In Guyana, a large percentage of families continue to live in depressed communities where housing is substandard and susceptible to environmental hazards. However, there appears to be little understanding of the long-term impact of such housing on low-income households. Recent studies undertaken in Guyana have served to shed some light on this phenomenon. The objective of this research paper is to discuss the findings of investigations on the housing situation in Guyana with respect to the extent to which low-income housing projects assist in strengthening the long-term capacity of vulnerable households in the urban environment as a poverty reduction strategy. The study took a twofold approach. It draws on information from recent Housing Strategies and UN Habitat case studies on one hand, and on the other, data provided by households in two unplanned communities in Georgetown. A comparison of the present housing situation with respondents' housing needs and

desires suggested that low-income housing does not necessarily contribute to poverty alleviation. The implications for policy and practice are discussed in the paper.

Mis-Steps in Planning and Implementation Sub-urban Housing Development in Guyana: Case Study of two Housing Schemes on the East and West Bank Demerara

Dr. Patrick Williams (University of Guyana)

For several decades concerns were expressed by social activists, planners and decision-makers about the over-crowding and degraded housing conditions that existed across Guyana and in particular in the urban areas. There were high population growth rates, socio-economic and environmental issues that posed serious technical and financial challenges for the municipal administration. In Georgetown, for example, there was an acute shortage of land for housing, high cost of rental, stagnant housing market, flooding, high unemployment and widespread poverty, especially in the inner city areas. Recognizing the poor living conditions of a significant proportion of the urban inhabitants and the environmental and health hazards that confronted them, policy-makers through the main agency, the Central Housing and Planning Authority (CHPA), in collaboration with a number of other bodies including those within the public, private and non-governmental sectors took a number of bold initiatives to address the serious housing and health risk situation in Georgetown. Abandoned sugar lands surrounding the city were acquired and with the provision of limited infrastructure were allocated to those perceived to be the most deserving for the construction of their homes. However, there were undoubtedly many significant flaws in the planning and development in the new housing areas. These range from lack of social facilities, poor infrastructure, improper design and layout of house lots and unsatisfactory selection of house lot occupants. This paper examines these main issues and attempts to discuss the extent to which they have limited the success of two of the recently developed housing schemes, Diamond and La Parfaite Harmonie, as settlements to accommodate Georgetown's overspill population.

The implementation of the participatory process in building of low income houses in the Hinterland of Suriname

Dynaida Baptist (LISP Foundation, Suriname)

The Foundation Low Income Shelter Program, founded in 2002, aims to provide a contribution to reducing poverty in Suriname. This is done by encouraging its target group (low and low middle income) to self-building (new building) and keeping in good condition of existing housing (renovation/expansion). The Foundation provides under the LISP II program subsidies for both the coastal area and in the peripheral areas. Also, people with disabilities have been benefited. Not only the coastal areas around the periphery Paramaribo belong to the working environment of the Foundation, but also our vast interior is an important working area. This vast inland, mainly inhabited by Maroons and Amerindians, required a different approach in determining the target group that the LISP II program wants to reach. This particular approach is due to the fact that our inland residents have different habits (culture and structure) than those in the urban areas. During the implementation of the building process women took special part in the design phase and field execution. Work was conducted in the following headings

- Socio-economic field research
- Computer Aided Design Workshops
- Execution of building processes: Implementation and Supervision

Through the efforts of all actors, IDB, the Ministry of Social Affairs and Housing, District Commissioners, the local authority of the villages, SFOB, Team Alfa, the total LISP staff and of course the beneficiaries, there are 120 houses completed. The efforts of the builders, but not least the suppliers, transporters and boatmen and especially women have contributed to beautiful homes in 12 villages. This is a positive development for the housing in the interior. The expectation of the surrounding villages that they are also eligible for homes has indeed been aroused and the need for homes in several villages is known. There is this question of a healthy form of jealousy in these villages. The beneficiaries are very proud of their new home which improves the appearance of their village.

Sustainable Housing in Jamaica: A Temporal Analysis of Spatial Inequalities

Shari-Ann Henry and Dr. Godfrey St. Bernard (The University of the West Indies, Trinidad)

According to Harvey and Clayton (2004) sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs," (cited WCED 1987, p 43). In the same vein, sustainable housing is one of the main social goods that are deemed necessary for survival and at the same time there are demonstrations of unsustainable housing practices and spatial inequalities across Jamaica. The need to achieve sustainable housing is as old as humanity. It is imperative to explore sustainable household indicators across different geographical areas as a means of improving the well-being of individuals who occupy these housing units. The Government of Jamaica has endured several housing policies to help increase the affordability of housing. However, persistent income inequality and social disparities have defined the ways in which people can buy houses. Therefore if sustainable housing indicators are not taken into consideration then concurrently, unsustainable housing indicators will become a virus. It is against this background that the researchers assessed temporal variations in selected indicators of sustainable housing across the four censuses (1982, 1991, 2001 and 2011). Measures of housing inequality and inequity (using descriptive statistics and measures of variation) and time series analysis were also used to assess whether the distribution across parishes were similar or whether some areas were at a disadvantage on these indicators. Finally, the findings show that over the four censuses some of the geographical areas were at a disadvantage on some of indicators of sustainable housing. These findings were linked to housing policy directives to solve housing inequality in Jamaica.

The Tenancies Freehold Purchase Act Cap 239B

Kelly Hunte (Ministry of Housing, Lands and Rural Development, Barbados)

After the full emancipation of the slave population in 1838, legislation was needed in order to assist agricultural workers on plantation and private lands, in the purchasing of these lands which they had informally occupied for a number of years. Previous legislations had favoured the landowners, to the detriment of workers who contributed their labour in exchange for little or no possibility of owning their own land. The Tenancies Development Act and the Tenancies Freehold Purchase Act were passed by the House of Assembly on 26th September 1980 and these legislations aid persons in purchasing the land they occupied. Two key objectives were to firstly, establish a legal right of tenants on plantation tenancies, as well as other tenancies, to purchase the freehold of the lots they have occupied for a specified period. Secondly, to place a legal obligation on the landlords of plantation tenancies and other tenancies (including the Crown and Statutory Boards) to sell these lots. Under the Tenancies Act, there are two types of tenancies: the plantation tenantry and other tenancies which are non-plantation lands but do not include land adjoining the foreshore. At present for the plantation tenancies programme, it has facilitated some 4,932 qualified tenants or 74% of the 6,696 lots surveyed

in 333 plantation tenancies, to receive title under the TFPA, Cap 239B. Plantation lands are sold at 10 cents per square foot. For non-plantation tenancies, it is estimated that there are some 10,000 such tenancies across Barbados. The Government of Barbados subsidizes the excess of purchase price, when the open market price exceeds \$2.50 per square foot. Financial assistance is limited to the first 5,000 square feet of the Lot size. The major component of the Tenancies Freehold Purchase Act is that the land must be occupied, specifically for five consecutive years and there should be a minimum of six (6) dwellings on the property in order to satisfy the criteria for tenancies.

Decent Housing

Dr. Yolanda Alleyne (Ecoisle Consulting Inc) and Kelly Hunte (Ministry of Housing, Lands and Rural Development, Barbados)

An occupied house, regardless of condition, “meets” the shelter needs of that particular family whose options are limited by their circumstances. The imposition of minimum housing standards tends to have the effect of creating a black market in the rental sector, rather than forcing landlords to bring houses up to the required standards. It is also difficult to enforce these standards in owner occupied homes after initial construction. Building Codes exist in several Caribbean countries, but questions arise as to the effectiveness of these codes. Caribbean Governments also struggle to provide housing solutions to low income earners within a price range that is affordable to the persons who are meant to be targeted by these projects. Yet families continue to find means and ways of housing themselves every day in a manner that is affordable to them usually without any reference to building codes. In Barbados, it is estimated that about 85% of homes are constructed without the input of an architect or an engineer. This paper will present an option to help citizens achieve the best possible housing solution that they are able to produce for themselves. It is aimed primarily at existing structures since any new construction should meet any legal requirements. Decent Housing proposes an incremental and cooperative approach for the improvement of any structure so that it can be safely occupied. It is a means of identifying hazards in a structure, making recommendations for rectifying the problem. (For example: poorly constructed steps are a greater hazard than an undersized bedroom). The focus is on the potential effect of conditions rather than quality, comfort or convenience. It is not about creating alternate standards.

Housing and settlements in Suriname

Smietadevi Mahabier, Angelita Ramharakh, Deepak Ramneras, Charleen Ranoesetika, Femia Wesenhagen and Angelika Namdar (Anton de Kom University of Suriname)

There seems to be contradictions between housing, urban regeneration and neighbourhood upgrading policies and strategies and the requirement of sustainable urban development in the Caribbean. Adequate housing helps individual's ability to respond optimally to development opportunities that lie before him and opens the way to utilization of the many possibilities of success in society. In fact it is a task of the government to foreseen in policies for adequate housing and housing for all inhabitants. In Suriname, there is a need for adequate and affordable housing for many households. It is to be noted that the need is greater than the available supply of accommodation and that the increase in the number of households is not balanced with the increase of living space. What are the roles of the government and the private sector in the housing sector? To what extent utilities are regulated? How can the funding of housing can be arranged? To answer all the questions information will be gathered from various institutions engaged in housing projects. This includes the private sector and the public sector. This is because both parties uses different standards for their housing projects. While the private sector are advertising the use of international standards for their construction, the public

housing plan of the government talks about lack of standardization in Suriname. The expectation of this study is to advise to what extent the government should directly participate in the construction of housing and to what extent the government should be able and facilitate the housing production sector. Therefore the best practices in either the public sector or the private sector in the region will be studied.

Sub-theme 7: Built environment and public health

Health Dynamics in the Built Environment: An Urban Intensity Perspective

Dr. Samantha Chadee and Prof. Valerie Stoute (University of Trinidad and Tobago)

The built environment encompasses the physical components of the environment, inclusive of infrastructure, households, buildings, streets and open spaces, within which individuals reside and carry out their daily activities. It impacts both indirectly and directly on the outdoor and indoor physical environment as well as the socio – economic environment. The elements which comprise the built environment and those of the physical and socio-economic environments which are impacted by it, are recognized as key determinants of health. In this study, health dynamics in the built environment are explored along the urban – rural gradient in Trinidad and Tobago. The gradient is measured by a statistically validated Urban Intensity Index developed previously, using physical data from the built environment. Physical health data from National Surveys as well as data collected on perceptions of health care access and environmental quality are utilized in conjunction with the Urban Intensity Index. Multivariate statistical analysis and maps are used to explore these dynamics. Ultimately, the outputs of this study can potentially support efforts to diminish the gap between rhetoric and reality, through provision of critical information for policy and decision making, as the global development agenda moves toward evidence – based policy making.

Public Spaces for Liveable and Healthy Cities: UN-Habitat's Experience

MD Sohel Rana and Ms. Cecilia Andersson (UN-Habitat)

Public spaces are all places publicly owned or of public use, accessible and enjoyable by all for free and without profit motive. This includes streets, open spaces and public facilities. The character of a city is defined by its streets and public spaces not by its private space. Public space takes many spatial forms, including parks, the streets, sidewalks and footpaths that connect, playgrounds of recreation, marketplaces, but also edge space between buildings or roadsides which are often important spaces for the urban poor (UN-Habitat, 2014). The Session of the Governing Council of UN-Habitat, member states mandated UN-Habitat to consolidate agency-wide work on public space, to develop and promote public space policy, coordination, disseminate knowledge and directly assist cities in public space initiatives. In the recently adopted SDGs, public spaces feature prominently as one of the targets to make cities and human settlements inclusive, safe, resilient and sustainable. Target 11.7 requires member states, and by extension, city authorities to provide universal access to inclusive and accessible, green and public spaces particularly for women, children, the elderly, and people living with disabilities and the historically vulnerable in the society (United Nations, 2015). Public spaces can play a vital role in improving the physical and mental health of city dwellers. Creating spaces in the city that increase social capital (mutual trust, bonding and safety), host community events and increase social interaction and inclusiveness, are key factors that reduce the risk of developing physical and mental disorders (Hosang, 2015). Green and open public spaces also provide mental benefits. Youth who play in green play areas have less severe attention deficit disorder (ADD) symptoms. This is as opposed to kids who play in less-green settings, and for those with ADD, play in green settings reduces

post-activity ADD behaviour (Taylor, Kuo & Sullivan, 2001). Since 2012, UN-Habitat is implementing a Global Public Space Programme and supporting cities in developing a network of improved public spaces that contribute to developing healthy cities. This paper will explore the benefits of public spaces for urban development and physical and mental health of citizens in urban settings, presenting projects in India and Haiti before and after implementation and how they contributed in improving public and mental health of surrounding communities and way forward.

Provision of Active Public Open Spaces: The Critical Role of Development Control

Dr. Ancil W. Kirk (Ministry of Planning and Sustainable Development, Trinidad)

Planned neighbourhoods in Trinidad, developed by the state's Housing Development Corporation (HDC) were often observed to lack public open spaces (POS) with features which were likely to promote physical activity in adolescents. The development control process at the urban and regional planning agency was hypothesized to be ineffective in ensuring the provision of such POS. The study examined the agency's planning guidelines for the provision of POS, within state-planned neighbourhoods in Port of Spain and the Capital Region. The HDC housing database was used to identify all neighbourhoods within Port of Spain and the Capital Region. Approved subdivision layouts at the planning agency, together with 2007 satellite imagery were used to identify the POS within the neighbourhoods. The CLAN Public Open Space (C-POST) audit tool used in a related study in Melbourne, Australia was modified and used to audit the features of each of the POS. The outcomes were assessed against the planning guidelines of the urban and regional planning agency. Most neighbourhoods lacked the required POS. The majority of those with POS lacked activity-facilitating features. The planning guidelines of the planning agency, as part of the development control process, were not consistently adhered to and implemented. The study concluded that the planning guidelines at the urban and regional planning agency, did not effectively ensure the provision of POS with features which were likely to promote physical activity in adolescents. The findings have significant implications for the promotion of physical activity in adolescents and in the ultimate reduction in the rise of non-communicable diseases (NCDs) in the Caribbean. It also has critical implications for the role of development control and good planning practice in facilitating physical activity through the provision of active POS, and in the achievement of healthy and sustainable communities in the region.

Research into the difference of the impact of built environment on public health between four different land development projects

Sherina Soekhlal, Sunaina Sital, Charma Tanoesemito, Tahirah Straal, Femia Wesenhagen and Angelika Namdar (Anton de Kom University of Suriname)

The Ministry of Public Works is responsible for the development, management and maintenance of sustainable public goods as well as the care of the living environment. The factors which contribute to aforementioned impact (but are not limited to) are 1) the already built constructions, 2) air pollution (mostly due to transportation systems), 3) available funds and 4) the basic human mentality whether or not to pollute. Decisions about land use with a focus on the built environment and health; conserving the incoming capital; infrastructure; and provide information to the community. This project involves getting insight in urban development and how to adapt it to improve public health. The purpose is to identify to what extent the relationship between environment and health can be exploited to have a significant impact on human health. Health covers not only the absence of sickness, but also the quality of living e.g. remediating green factor.

This research focuses on comparing the impact of built environment on public health between four different land development projects in the resort Uitvlugt. The four different projects are 1) old government land development project, 2) new government land development project, 3) initiated from the private sector and 4) emerging private housing estate project. The research method which will be used in this project is observational research and interviews.

The expected results of the study are to identify measures which can lead to a healthier and friendlier built environment.

Sub-theme 8: Management of urban coastal zones and natural landscapes

Coastal zone management in Paramaribo, Suriname

Davita Obergh, Alysha Luchmun, Sharon Rakijo, Kayleigh Tjitrodipo, Kelsey Tsie Chun Sioe, Femia Wesenhagen and Angelika Namdar (Anton de Kom University of Suriname)

Most of the population of Suriname lives along the coast, in the capital city Paramaribo, where factories, companies, warehouses and other activities are concentrated. A worldwide problem is the sea level rise, which can lead to erosion of the coast. Another factor is climate change, which is partly the result of human actions whereby environmental pollution arises. Also, the loss of mangrove forests. This because mangrove forests are cut open to be used as firewood and it can also be a result of more and more housing that takes place in and around Paramaribo, including places for tourism issues and factories close to the sea for the convenience of products transport. Another cause is that due to the fact that most services are concentrated in the Paramaribo, there is an enormous pressure caused by the urbanization on the estuarine zone. Due to all above mentioned issues, the erosion of the coast has already lead to different environmental, social and economic loses. The goal of this study is to identify successful strategies which can be applied for the protection of the coast of Paramaribo and make the city more resilient. Therefore the impact of existing coastal zone management strategies within the region and other similar countries will be studied, and there will be interviews with the experts in in the relevant field. An Integrated Coastal Zone Management Strategy can be used as an approach to protect the coastal zone of Suriname with the focus on Paramaribo.

Complexity of the Guiana coastal zone and its dynamics under ongoing climate change

Sieuw Naipal (Anton de Kom University of Suriname)

The coastal zone of the Guiana's and in particular that of Suriname is formed during the (last) Holocene phase. It is low and flat and comprises deposited mud and sand shell ridges. Mud and fine sand originate from the Amazon basin, while the shells from the sea. Deposition of shells on the coastline is a process that is triggered by the strong cross currents at locations where mudbanks are absent. Deposited sand and shell ridges form a vital role in the development of the coastal area and are indispensable for the existence of the wide variety of the biodiversity, which on its own turn provide a number services and goods to the local communities, the country and the region. Understanding these links will shed light on the complex formation of the coastal ecosystem and hence may promote its conservation rather than its conversion for urbanization or agriculture. Currently, this deposition is affected by the ongoing climate change and in particular by the hurricanes. This article attempts to prove the relation(s) between climate change, hurricanes, shell deposition and coastal development.

Striving for Sustainable Coastal Redevelopment in Urban Areas in the Caribbean: A Case Study from San Fernando, Trinidad

Prof. David Brown (McGill University) and Darian Beharry (WSP Caribbean Ltd.)

Sustainable urban coastal management is a very critical concern for numerous countries throughout the world due to the need to find an appropriate balance amongst the conservation of sensitive land and marine ecosystems, competing economic interests, and inequitable access for different segments of society; while at the same time taking advantage of the very significant development potential of these areas. These issues are further complicated by the expected effects of climate change, which include rising sea levels, higher land and sea temperatures and increasingly unpredictable weather. While some cities have responded well to this challenge by establishing modern port facilities and attractive waterfront developments that contribute to the economic and social life of the city, many more seem caught in an impasse waiting for plans that: capture the imagination of a broad cross section of the public, stimulate investment, and benefit from effective long-term bi-partisan political leadership. This paper focuses on the redevelopment of the San Fernando Waterfront, an area that has been largely taken over by informal development and is considered unsafe/unattractive by the general public. While there are some formal development projects such as a ferry terminal and facilities that are used by fisher folk; historic buildings and landmarks are in decay, environmental conditions are poor, and the very significant social, economic, and functional links that were once in place between the waterfront and the City have been broken. Over the years many plans have been prepared to address these issues but were not implemented. In 2014, a consortium that included Deloitte, Ecoengineering, and WSP Caribbean Ltd. prepared the most recent waterfront plan under contract to the national Town and Country Planning Division. This Integrated Feasibility Report reviewed all previous plans for the area and prepared a fresh development strategy that took into account current environmental, economic, social, and political issues. Along the way, well-attended workshop and public consultation sessions were held to ensure that the interests of all stakeholders, including informal residents, were addressed. While a consensus was achieved and a collaborative managerial structure was established, project implementation is proceeding at much slower pace than anticipated. The paper and presentation will situate the San Fernando Waterfront Redevelopment study within the sustainable development paradigm; provide a brief overview of coastal management in the Caribbean; describe the current situation in San Fernando; and present the plan and planning process that was adopted. The conclusion will draw attention to the need for ongoing political support and an implementation programme that balances the need for a collaborative, inclusive process with efficient concrete accomplishments.

Climate change adaption strategies for urban coastal communities: Lessons from Guyana's mangrove restoration programme

Kene Moseley, Rudolph Adams and Dr. Oudho Homenauth (National Agricultural Research & Extension Institute, Guyana)

Located on the north coast of South America, Guyana has a total land mass of 83, 000 square miles; however 90% of the country's population and major infrastructure including the capital city is located along the coastal zone which is a narrow strip of 430km of fertile land of 26-77km wide and 0.5-1.4meters below high spring tide level. The coastal zone is of significant importance to the country's economy, since with the exception of the extractive industry almost all of the Guyana's agriculture industry which represents 20% of GDP and 40% of export earning is concentrated on the coastline. Protection of this low-lying coastal zone is highly dependent on a complex system of sea defence structures in the form sea walls, earthen dams and mangroves. Guyana's SNC to UNFCCC predicts

that the country can expect to experience higher incidents of disasters such as flooding and water intrusion derived from storm surges, sea-level rise, and intense precipitation resulting from climate change. Recognizing the potential impact of climate change on the urban coastal zone, Guyana initiated a program to restore, protect and manage its coastal mangrove forest as part of an overall strategy to mitigate and adapt to climate change. Mangroves are considered to be among the most carbon-rich forest, containing an average of 1,023Mg carbon per hectare. These unique and highly productive forests provide valuable ecosystem services including shoreline protection and stabilization. This paper will review the impact of Guyana's mangrove restoration programme from 2010 to 2015 where a range of interventions were utilized to restore degraded coastal mangrove forests. Results of the project interventions to date suggest that if properly planned and managed, mangroves can be restored along the coastline and serve as part of a comprehensive climate change adaptation and mitigation strategy.

Applying REDD+ to save the world's lungs

Madhawi Ramdin (National Institute for Environment and Development in Suriname)

The Amazon rain forest has been called the lungs of the world. REDD+, which stands for 'Reducing Emissions from Deforestation and Forest Degradation, and the role of conservation, sustainable forest management and enhancement of forest carbon stocks', is an international policy initiative that emerged in response to concerns about climate change due to forest loss and degradation. As forests in Suriname are under a threat from uncontrolled gold mining, logging, agriculture and infrastructure development, the REDD+ mechanism has the potential to result in improved policy improvements, and results-based payments.

Suriname is classified as a High Forest cover, Low Deforestation rate country, which entails that the country is in the early stage of forest transition. There is growing recognition that forests in Suriname are under a threat from uncontrolled gold mining, logging, agriculture and infrastructure development. There are several obstacles to controlling forest use such as capacity concerns within important implementing agencies. For example lack of expertise on modern technologies and methods. There is also a need for proper land-use planning and for agencies to collaborate. Inadequate policies and legal enforcement and a weak institutional framework and environmental legislation are some other challenges.

REDD+, which stands for 'Reducing Emissions from Deforestation and Forest Degradation, and the role of conservation, sustainable forest management and enhancement of forest carbon stocks', is an international policy initiative that emerged in response to concerns about climate change due to forest loss and degradation. With the preparation of its readiness preparation proposal, in 2013, Suriname received approval for a US\$ 3.8M grant from the FCPF to support some of the preparatory activities towards REDD+. The readiness phase aims at formulation of a REDD+ strategy, setting up a safeguard information system, determining the forest reference emissions levels and putting in place a National Forest Monitoring System. These are required preparations for a possible future international REDD+ mechanism that would compensate financially for national efforts to reduce emissions from deforestation and forest degradation. The design of the compensation mechanism is still under negotiation, but the signs from Paris agreement are positive.

The improvements I would suggest are to include in their development strategy green transformation thinking. Although REDD+ mainly focuses on forests as a mitigation mechanism, it is an opportunity to further climate compatible development. This entails that a development strategy should not only focus on mitigation, but also on adaptation. REDD+ is an opportunity for the nation to improve collaboration among actors, which means at all levels, but also improve necessary structures such as land-use planning and legislation.

The Gap between ICZM and spatial planning in the coastal zone of Suriname

Ria Jharap (Anton de Kom University of Suriname)

Suriname, part of SIDS, faces the severe impacts of climate change and its influence on spatial planning. Spatial planning in the coastal area is particularly challenging due to the problems of rising sea level, the land-use pressures in the coastal zone and the fragile nature of the coastal ecosystem. As a country with a low lying coast where over 80% of the population resides, and where the major economic activities and infrastructure are concentrated, the coast of Suriname is very important for global climate change, both in terms of mitigation and adaptation. Healthy coastal zones, including mangroves and wetlands, reduce the impacts of climate change by protecting inland areas, stabilizing coastal zones against erosion and storm events, and creating a barrier against salt-water incursion. Urban settlements like Totness and Weg Naar Zee experience coastal erosion and increased flooding. In the “Weg naar Zee” area, conversion of mangrove forest into agricultural land resulted in severe coastal erosion and a significant loss of land. The government of Suriname has taken several steps to stop erosion and flooding in both locations. Suriname completed an Integrated Coastal Zone Management (ICZM) project. But in spite of the economic, social, and biological importance, very little national conservation investment is taking place within Suriname’s coastal zone and these ecologically vital areas continue to be degraded by over-harvest, mining, agriculture, and poorly regulated infrastructure development. Due to the overall weak policy regime of the government of Suriname, urban settlements in the coastal area are, because of their concentration of economic activity and population, disproportionately vulnerable to the effects of climate change. The aim of this paper and presentation is to discuss the gap between spatial planning and ICZM and its impact on urban settlements in the coastal zone of Suriname. The paper and presentation will be a rapid assessment and overview of current knowledge, meant to advocate for sustainable coastal land-use planning and adaptation.

Urban forestry

Sheesha Sahibdin (Anton de Kom University of Suriname)

Urban forestry is not a new concept, but it is one which appears to have growing potential. This is particularly true in developing countries, where urbanization is increasing at a rapid rate and a demographic switch from a predominantly rural to a predominantly urban society is taking place. Already rapid and uncontrolled urbanization in many developing countries is having fundamental social and environmental consequences. The role of the importance of urban trees in this situation appeared to be small at first. But after a lot of research urban forestry may provide third world towns with significant environmental and material benefits. (Carter 1995). There are many benefits to planting trees in urban areas. To start of the scenic appeal draws tourists to visit the country. But in the past decades the most important benefit is the fact that trees have a positive impact on extreme climate change because they store and sequester carbon. Also they reduce noise pollution, improve water and air quality and lower the temperature in buildings and cars. All these benefits have an impact on the human health and the economy of the country. Given the services that urban forestry provide to the community there should be a clear policy in this area. The lack of an overall management plan in this area is the main reason that we have relatively little greenery in the streets of Paramaribo, although it has the potential to become a green city in the region. The aim of my study is to formulate a policy for urban forestry in Paramaribo. In the formulation of this policy I will take into account: the financial feasibility, construction and maintenance of the plant and the specific characteristics of the tree

species used. Ecology should be promoted so that man comes into a better living environment and the city becomes cooler and more attractive. There are two areas where my management plan will be examined theoretically. These areas are selected on the basis of the need for an intervention. An intervention can be:

Planting: This is necessary in areas where there are little to no trees.

Repair or maintenance: this is necessary in areas that are already planted and is very important for the safety of the public and its property in the area. Furthermore, it also makes the trees look better and be healthier.

Other Sub-Theme 8 Presentations:

- Why do we flood? – Mangrove and peri-urban coastal protection in Suriname - Sofie Ruyschaert (WWF Guianas), Edward Anthony (Aix Marseille Université, France), Gregory Verutes (WWF Science consultant, USA), Laretta Burke, Helen Ding (World Resource Institute, USA) and Mangrove Forum Suriname (Mafosur)

Cross cutting sub-theme: Monitoring and Evaluation

Measuring Urban Sustainability - Port of Spain, Trinidad

Keisha Bharath and Dr. Michelle Mycoo (The University of the West Indies, Trinidad)

The urban areas of the Caribbean are the dynamic locus and engines of national and regional development. Although they provide agglomeration economies, unsustainable development and management of the region's cities has led to economic, social and environmental resources being indiscriminately depleted and has undermined the functionality and liveability of Caribbean cities. Professionals such as planners and policymakers charged with the task of urban development and management are required to craft innovative legislation, policies and plans that are tailored to fit the current and projected developmental needs of the city. In so doing, it is critical to dissect and analyze the city's working components to determine the degree of performance within each element. The aim of this paper is to determine the performance of Caribbean cities in achieving sustainable urban development. It uses the city of Port of Spain, Trinidad as a case study. The methodological approaches taken are the derivation of a comprehensive set of urban sustainability indicators and the application of key benchmarks for measuring sustainable urban development in a SIDS context. Primary and secondary datasets obtained from public and private entities are analysed. Preliminary findings show that sustainable urban development has been off track and will continue to trend in this direction unless steps are taken to divert this course. The paper concludes by highlighting the city's failure to meet key urban sustainability indicators. Finally, it gives short term and long term recommendations, such as smart practices and tools which may help overcome unsustainable urban development. The paper is useful to policymakers and decision-makers in formulating urban policies, plans and projects which will help move cities along the continuum of sustainable urban development and align city-dwellers aspirations of social, environmental and economic sustainability.

Happy to live in a sprawled neighbourhoods!: A political economy assessment of the housing satisfaction and influential factors of three recent housing projects in Suriname

Ms. Sigrid Heirman, Ms. Kristien Mariën and Dr. Tom Coppens (University of Antwerp)

Since the 19th century, Suriname struggles with housing deprivation. Despite all efforts, the housing shortage aggravates. In 2010 the shortage was estimated to be 18.000 dwellings. Subsequently, new public housing projects were developed. Mainly in the periphery of Paramaribo, where they support the ongoing urban sprawl process. These projects accommodate lower middleclass families, whom were formerly living in older urban residential neighbourhoods in overpriced low quality rental houses or were sharing a house with several generations. Due to their moderate income and the rise of costs linked to the sprawled location, one would expect that the inhabitants are dissatisfied. But this seems a very of key supposition as media broadcasts a general positive public attitude regarding the public housing projects and an image of very satisfied new homeowners. The persistence to build on unsustainable sprawl locations is not unique for Suriname. Evidence shows that sprawl tends to be a stubborn spatial development process. The dis-benefits are affecting public goods and future generations making them fuzzy and easier to ignore, while the benefits are tangible as they have a direct and immediate effect. Using a political economy analysis approach, the trade-off between the benefits and dis-benefits and its institutional context can be detected. This paper uses interviews with new residents (N=60) and stakeholder (N=42) to decipher the housing satisfaction balance of the households and the factors that might bias this balance. The fieldwork showed that context factors make the increased costs relative, that the historic and complex lock in of the deprived housing situation of the lower middle class creates a positive bias and that the public opinion supports the idea that institutional context forges the public housing programme to make the trade-off between solving housing deprivation on the short term and sustainable urban development on the long run.

Other Monitoring and Evaluation Presentations

Picturing urban prosperity: Implementation of the City Prosperity Index initiative in 136 municipalities in Mexico – Luis Herrera Favela and Marcin Silwa (UN-Habitat Mexico)

Cross cutting sub-theme: Transition management

“The Future of Paranam” The Urban Development Vision for Paranam

Xiomara Faria, Myrre Koorndijk, Dayenn Jabinie, Roian Atmopawiro, Sinaija Kawai, Femia Wesenhagen and Angelika Namdar (Anton de Kom University of Suriname)

This article reviews the research design of “The Future of Paranam: The Urban Development Vision leading Paranam to the Compact City of Suriname”. After nearly 100 years of glory and productive times in Suriname, the multinational Alcoa and its subsidiary SURALCO will end its operations in Suriname. This because the production isn't profitable for the future. In addition, suppliers will lose income, which also implies that the State will earn less. Unemployment will increase, which means that several thousand people will fall into poverty, which increases the risk of falling into crime. After distortions of SURALCO, Paranam will be experiencing a decline on social, civic and economic level. In order to prevent this for happening, alternatives must be sought to keep the potential of Paranam alive. The goal is to formulate a development vision for Paranam where the emphasis will be placed on to form a Compact City, using a quantitative and qualitative research strategy, and interviews. To start off, research in literature will be done to

determine which action plans have already been made for Paranam and also background information about this area will be studied. The second step is a field orientation, to determine which activities are mainly taking place and also a questionnaire will be handed out to locals to determine their thoughts about the future of Paranam. The last step is to work with qualified experts to create the right vision for Paranam. The experts needed are those who have a background in e.g. civil engineering, environmental engineering and urban development. The main expected result is a vision for Paranam.

Emerging trends in Infrastructure 2016

James Stewart (KPMG UK), Stephen Beatty (KPMG Canada) and Julian Vella (KPMG China)

Barring a global economic meltdown or apocalyptic event, 2016 is already shaping up to be a year of growing momentum for the infrastructure sector. The signs of this momentum are everywhere: in new sources of capital and new funding approaches that promise to unlock trillions of dollars in new equity and debt investment; in growing asset management capabilities, cyber security and public procurement, which are ushering in a real step-change in the way operators and owners manage assets; in the growing boldness of governments seeking to catalyze economic and social benefits; and in the growing alignment between the ‘macro’ needs of governments and the ‘micro’ decisions of consumers. Over the past 4 years, KPMG International has tracked the key trends that — in our opinion — will influence the world of infrastructure over the coming years. Some of the trends that we have identified in the past persist — governments continue to struggle to unclog their pipelines; emerging markets continue to face funding gaps; the optimal relationship between the public sector, the private sector and taxpayers continues to evolve. This is to be expected; massive changes to fundamental problems do not happen overnight. As this year’s Emerging Trends in 2016 suggests, however, the industry is now standing on the cusp of greater change. The development and interaction of many of these trends could very well transform the way governments, businesses and users interact with and invest in infrastructure. More importantly, if managed properly, they also hold the power to solve many of the biggest challenges facing our industry today. Once again, we hope that this year’s insights serve to not only highlight major trends but also to help readers see some of the less obvious long-term changes affecting the infrastructure sector.

Strengthen the Land Use and Physical Planning Framework in the Caribbean: A case study on the Caribbean Network for Urban and Land Management

Dr. Perry Polar (CNULM) and Dr. Asad Mohammed

This presentation examines the Caribbean Network for Urban and Land Management (CNULM) as case study to show how Higher Education Institutions (HEIs) can create social change. It reflects on the successes and practical challenges and makes recommendations which can further enhance HEIs competence in this area. The CNULM is a project execution unit established in 2008 operating out of the Department of Geomatics Engineering and Land Management at the St. Augustine campus of the University of the West Indies. Its self-defined mandate is to fostering urban planning and land management practices that respond to the unique issues and challenges present across the Caribbean. It networks with a range of regional and international HEIs, multilateral agencies, professional bodies and other stakeholders to execute development activities financed by donor

agencies. Many of its activities specifically target developing and professional planners and urban professionals as it is believed that these groups play an important role in decision making by both making sound technical decisions or by providing sound technical advice to higher level decision makers. This is becoming increasingly important as citizens, empowered by social media tools, are placing greater pressure on governments for greater transparency and accountability. Some of the key accomplishments include (a) hosting of the annual Caribbean Urban Forum which brings together high level decision makers, academics, municipal managers and other urban professionals for policy dialogue, knowledge sharing and training; (b) establishment of the Caribbean Planners Association and assisting in the establishment of national association of planners in Belize, Dominica, St. Lucia, Guyana and Suriname; (c) establishing agreement on a research and policy agenda for the urban sector (Caribbean Urban Agenda); (d) encouraging research dissemination through hosting of a webinar series targeting commonwealth planners, technical publications and an award winning film; and (e) encouraging curriculum development at regional HEIs.

The urban transition of a French town in Amazonia: building a shared vision for a sustainable urban development of the city of Saint Laurent du Maroni

Antoine Daublain and Justine Audrain (Etablissement Public d'Aménagement en Guyane)

The city of Saint Laurent du Maroni, located in French Guiana and at the frontier with Surinam, is currently experiencing a demographic boom. As its population grows on a fast path, an acute need for urban planning strategies as well as upgrading policies is arising. In order to answer these needs, the municipality, in partnership with the Town and Country Planning Agency of French Guiana and the French Development Agency, have launched a process to build a strong local governance. The method, fostered by an independent association, the *Ateliers de Cergy (or Cergy Workshops)*, is based on participatory methods. It aims at including a great variety of stakeholders and partners locally and around the world, to build a common vision towards sustainable urban development.

PANELS

PANEL 1

Sub-theme 7: Built Environment and Public Health

Hosted by: Public Health Agency of Canada (PHAC)/ Caribbean Public Health Agency (CARPHA)

Plenary speaker: Thomas L Schmid PhD, Senior Scientist and Team Lead in the Physical Activity and Health Branch, of the Division of Nutrition, Physical Activity and Obesity CDC

PANEL 2

Sub-theme 7: Built Environment and Public Health

Round table discussion hosted by Dr. James Hospedales (Caribbean Public Health Agency) and Dr. Asad Mohammed (Director, CNUML) and an invited leader in Planning.

PANEL 3

Addressing Sustainable Development in Caribbean Cities – The Emerging and Sustainable Cities Initiative

Sub-theme 1: Sustainable Urban Development

Hosted by: Inter-American Development Bank

Background: The Emerging and Sustainable Cities Initiative (ESCI) is an IDB Technical Assistance program that helps intermediate cities in Latin America and the Caribbean in identifying prioritizing and structuring projects to improve their environmental, urban and fiscal sustainability. The Initiative integrates environmental sustainability, comprehensive urban development, fiscal sustainability and good governance. The diagnostic phase that usually includes assessments of urban footprint expansion and natural hazard modelling is followed by the preparation of Local Action Plans. Additional information about the ESCI program is available at www.iadb.org/cities.

This Session will have three objectives: (i) to outline the Emerging and Sustainable Cities Initiative (ESCI) methodology which has contributed to identify strategic actions for climate change resiliency and urban sustainability so far in 4 cities in the Caribbean sub-region (Port of Spain, Montego Bay, Bridgetown, and Nassau) ; (ii) to share illustrative findings from GHG Emissions Inventories, Environmental Hazards, and Urban Footprint in those Caribbean cities to which the ESCI methodology has been applied or is in early stage of application (Belize City and Paramaribo) –cases to be showcased in this panel are Port of Spain, Montego Bay, and Bridgetown; (iii) to promote discussion on topics such as: data availability and replicability of similar analyses and planning approaches by Caribbean governments or local stakeholders; possible adaptation of the ESCI methodology to better suit the Caribbean context; climate change adaptation/mitigation/resiliency, coastal zone management, strategic territorial planning of urban sprawl, infrastructure networks; and other priority urban planning issues to which such analyses should be applied.

Presenters:

Bio: Gerard Alleng: Gerard Alleng is a Climate Change Senior Specialist at the Inter-American Development Bank in Washington DC. Mr. Alleng joined the IDB in 2008 as a clean energy and climate change specialist with the Sustainable energy and Climate Change Unit (SECCI) and is the coordinator of SECCI activities in the Caribbean. Prior to joining the IDB, he was a Policy Fellow with the Center for Energy and Environmental Policy at the University of Delaware, where he managed

projects that focused on renewable energy policy and climate change issues. He has worked with the Caribbean Renewable Energy Development Programme (CARICOM/GTZ) and the Environmental Management Authority (EMA) of Trinidad and Tobago. Gerard holds a Master's degree in Energy and Environmental Policy from the University of Delaware and a Master's degree in Wetlands Ecology from the University of the West Indies, Jamaica. He also is a Caribbean Fulbright scholar.

Bio: Gilberto Chona: Gilberto Chona is a Lead Urban Economics Specialist at the Inter-American Development Bank in Washington, DC where he is a senior task manager in the formulation and supervision of urban investment and settlement upgrading projects. His 23 years of experience with projects at the IDB include fiscal, institutional, and operational analysis in Mexico, Central America, Panama, Dominican Republic and more recently Barbados, The Bahamas, Suriname, and Trinidad & Tobago. Mr. Chona holds a B.S. in Urban Planning from Universidad Simón Bolívar (Venezuela) and a Master in City Planning from the Massachusetts Institute of Technology (M.I.T)

PANEL 4

Housing Programmes in the Caribbean: Diagnostics and Evaluation

Sub-theme 6: Unrealistic and unsustainable housing and settlement upgrading programmes

Hosted by: Inter-American Development Bank

- Getting up to Speed on Housing in Trinidad and Tobago – Mr. Robin Rajack (Inter-American Development Bank) and Mr. Michel Frojmovic (Acacia Consulting & Research)

Despite the recognized importance of shelter and land development to social, economic and environmental outcomes in the twin-island state of Trinidad & Tobago, the last attempt at a comprehensive assessment of the sector was a quarter of a century ago. This presentation reports on a rapid assessment of the situation conducted at the end of 2015, identifying contemporary challenges and opportunities, while also delineating critical information gaps. It draws upon analyses of the 2000 and 2010 censuses; a database of informal settlements on State lands compiled by the Land Settlement Agency; and a database of over 50,000 applications for development permission between 2000 and 2015 compiled by the Town and Country Planning Division. Empirical focus is given to demographic and geographic trends including the decline in downtown living and growth of population along the north-south corridor; affordability including housing rents; informality including access to basic services; formal development trends; mobility; and public land sites earmarked for future development. Given that housing policy is now being posited as a pivot for an economic stimulus, and that immobility associated with the separation of residential and employment centers is a major cause of national concern, the analysis and the data gaps that this presentation highlights has strong contemporary relevance.

- Roundtable discussion IDB Evaluation of Housing Programmes in the Caribbean - Michelle Fryer, Leslie Stone, Odette Maciel, and Oscar Quintanilla (IDB's Evaluation Department)

PANEL 5

Building a regional dialogue for local governments as Agents of Development (Closed door)

Sub-theme 4: Local Economic Development for the Caribbean

Hosted by: Caribbean Local Economic Development Project (CARILED)

PANEL 6

Green growth for Suriname panel

Sub-theme 1: Sustainable Urban Development

Hosted by Conservation International

Suriname is in a unique position to deploy its forests and coastal ecosystems to mitigate climate change

in keeping with the goals of the COP-21 Paris Agreement to keep average global climate warming to well below 2 degrees Celsius. Our nature consisting of forests, plants, rivers, watersheds, fisheries, sea, soils, and all natural resources, ecosystems and biodiversity constitute our vital natural capital which always were and will continue to be central to long-term well-being, and therefore must be protected from overuse and degradation and, where necessary, must be restored and enhanced.

- This is a very positive development
- Green Growth cannot exist without conservation
- We believe that CI can play a very significant role in making this a success

PANEL 7

Sustainable Urban Development in the Caribbean Islands

Sub-theme 1: Sustainable Urban Development

Hosted by: UN-Habitat

Background: The Caribbean is a highly urbanized regions in the world, with 66.2 percent of its population living in urban settlements (UN, 2011) – a proportion almost twice as high as those for Africa and Asia (39%). However, most Caribbean cities have low density urbanization and sprawling, with various places hard to differentiate between urban and rural population densities (UN-Habitat, 2012). Few of the other challenges include: insufficient infrastructure networks, inefficient economic activity, high competition on land uses, urban primacy, high concentration of population in coastal zone and limited human resource and capacity that are hindering sustainable growth and development in the Caribbean region.

UN-Habitat has a long history of collaboration with the Caribbean region and is currently working on multiple planning and development projects in which climate change and disaster management, participatory slum upgrading and planning capacity development are notable. UN-Habitat has developed a tested set of principles, tools and approach to guide urban development in the 21st Century. Those sustainable urban planning principles promote compactness and maximize land efficiency, promote street connectivity and social integration and inclusion.

As a part of the ongoing collaboration, UN-Habitat is co-organizing the 6th Caribbean Urban Forum (CUF6) that will take place in Suriname in April, 2016. By considering the demands and needs UN-Habitat will facilitate a panel discussion on sustainable urban development in CUF6.

The key objectives of that session are:

- To identify key planning challenges and relevant principles and tools to tackle those challenges in Caribbean context;
- To identify entry points for future collaboration and practical interventions to shape sustainable urbanization policy for Caribbean region

Presenters:

Mr. Ricardo Jordán (Economic Affairs Officer, ECLAC)

Ms. Vera Kiss (Associate Economic Affairs Officer, ECLAC)

Two papers are circulated for reading:

- Habitat III Issue paper 8: Urban and Spatial Planning and Design
- Habitat III Issue paper 11: Public Space

PANEL 8:**Results based Monitoring and Evaluation for the Urban Sector****Cross cutting sub-theme: Monitoring and Evaluation**

Hosted by: Caribbean Evaluators International (CEI)

Presentations:

- Claudia Nicholson (Caribbean Evaluators International) and Dr. Lennise Baptiste (Caribbean Evaluators International)

PANEL 9:**Urban Indicators for the Caribbean: a panel discussion on measuring, monitoring and reporting on local sustainability****Sub-theme 1: Sustainable Urban development and Sub-theme 2: Local Governance and Decentralization**

Hosted by: Caribbean Network for Urban and Land Management and Inter-American Development Bank

The panel discussion will identify challenges and opportunities for adapting these tools and methodologies to the Caribbean context, relying on available data sources to report on sub-national trends and conditions, and designing indicators and tools to reach urban managers and decision makers.

Presentations:

Mr. Erik Vittrup - Regional Office for Latin America and the Caribbean, UN-Habitat

Dr. Joy St. John – Caribbean Public Health Agency (CARPHA)

Mr. Gilberto Chona or Mr. Robin Rajack – Inter-American Development Bank (IDB)

Mr. Michael Frojmovic - Caribbean Network for Urban and Land Management (Associate)

Ms. Lucy Slack -Commonwealth Local Government Forum (CLGF)