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**Activities and experiences of Suriname in the field of
Spatial Data Infrastructure: Advancement and
Challenge in a Globalization World***

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1. Abstract

This paper presents a review of the activities and experience of Suriname in the field of development and arrangement of its Spatial Data Infrastructure in all sectors of the society. In this report attention is paid the problems, reforming and innovations within the network of institutions in spatial information systems, geo-spatial policy and the start of a new land registry system :“Groundregistration and Landinformation System” (G.L.I.S.). In terms of vision there will be possibility in this conference to look for regional- and international co-operation with relevant and competent organizations for support of the Suriname Spatial Data Infrastructure and to set up of a Geo-Connections in Suriname.

2. Introduction

Geo-data will become more important and valuable when it is transformed according to modern Geographical Information System into digital maps. At the spatial orientation over these maps our visual thoughts is used for geo-spatial patterns, processes and relations. Spatial Data Infrastructure must be seen as an instrument that coordinates the activities of all networks of the public and private sector.

Geography Information System technology digests spatial data in knowledge and insight, which helps us with a better management of the arranged space (human and environment) , the natural resources, solving problems, and an effective and efficient application for resolution making and policy planning on national, regional and local level.

It is for Suriname as a part of the globalization world a challenge to participate in the “Ninth United Nations Regional Cartographic Conference for the America’s”. Suriname is following the trend of the other members in the context of the benefits that result from this conference.

The call to the countries of South America at the “Eight Regional Cartographic Conference for the America’s” in 2005 to participate in the “25th Conference of the U.N. Groups of Experts on Geographical Names (UNGEGEN)” is carried out by Suriname by presenting a paper at the conference which was recently held in Kenya (Nairobi) from 5-12 May 2009.

Suriname also belongs to the 22 countries which were called during the “Eight Regional Cartographic Conference for the America’s” in 2005 to work on a concept: instruction and implementation of a National Spatial Data Infrastructure. Suriname is also one of the South American countries that struggle with technical, organizational and financial challenge on integration, operationalization and standardization of geo-data. The participation of Suriname in this conference must be seen as:

2.1. That Suriname supports all resolutions which were accepted in the 7th and the 8th Regional Cartographic Conference of the America’s.

2.2 To contribute together in the projects of the United Nations Spatial and Economic Counsel, Statistics Division:

- Participation in the Global Spatial Data Infrastructure.
- To work together with the P.A.I.G.H., S.I.R.G.A.S., and the U.N. Spatial Data Infrastructure.

The establishment of a national “Database, Geo-Connections Suriname” according to regional and international standards. The function of the Geo-connections Suriname will focus on the organization of data at the level of land use in the design and spatial data in the sectors of health, demography, education, police and security, environment, tourism and activities of the private sector.

3. Definition of Suriname National Spatial Data Infrastructure

Suriname National Spatial Data Infrastructure may be defined as all technology and policy which are needed for gathering of resources in the field of land use, physical and social environment and the role of businesses, institutions and households in the primary, secondary and tertiary sector. The obtaining, digesting, storing and distributing of geo-data is designed and created in Geographic Information System to respond for better efficiency and effectiveness of the private and public service.

4. Geodetic activities of the land and ground information system

The Suriname Cadastre system within the Bureau of Land Management is responsible for maintaining records of all public lands within the border of Suriname territories. The use of cadastre as a mean of defining the dimension location of ownership land parcel in the division: crown property, long lease, ground lease and property.

The ground administration system is antiquated, manual and there is being worked with analogical maps. Besides the ground administration are fragmented institutions; not attuned to each other. Only with a few institutions (like Suriname Statistic Office (ABS) and Central Office of Population Administration) statistics are digested digital. Services of the Central Office of Air and Soil mapping is based on the classical (analogical) methods topography. The identification, inventory and mapping of bauxite, gold, gravel, fresh water and oil, has been basic knowledge for the strategic development of the country.

5. Suriname Network for Monitoring its Spatial Data Infrastructure

5.1 Suriname Spatial Data Infrastructure

The Surinam Network for monitoring its Spatial Data Infrastructure can be divided into:

1. Geodetic activities: links with Suriname Geodetic Survey, Office of Cadastre Register, Central Office of Air and Soil Mapping out, Duty of crown Property and Office of Soil Surveyor.
2. Surinam’s network for monitoring its biodiversity has a co-operation with preservation natural resources of tropical rainforest, ecosystems and geomorphology landscape, links with:
 - Suriname Heritage Foundation.
 - Suriname Natural Preservation.
 - Conservation International (C.I.).
 - World Wildlife Fund (W.W.F. Guyana’s).
 - World National Fund (W.N.F.).
 - Amazon Conservation Team Suriname.
 - Movement of Eco- Tourism in Suriname.
3. Local (decentralization) government, links with:

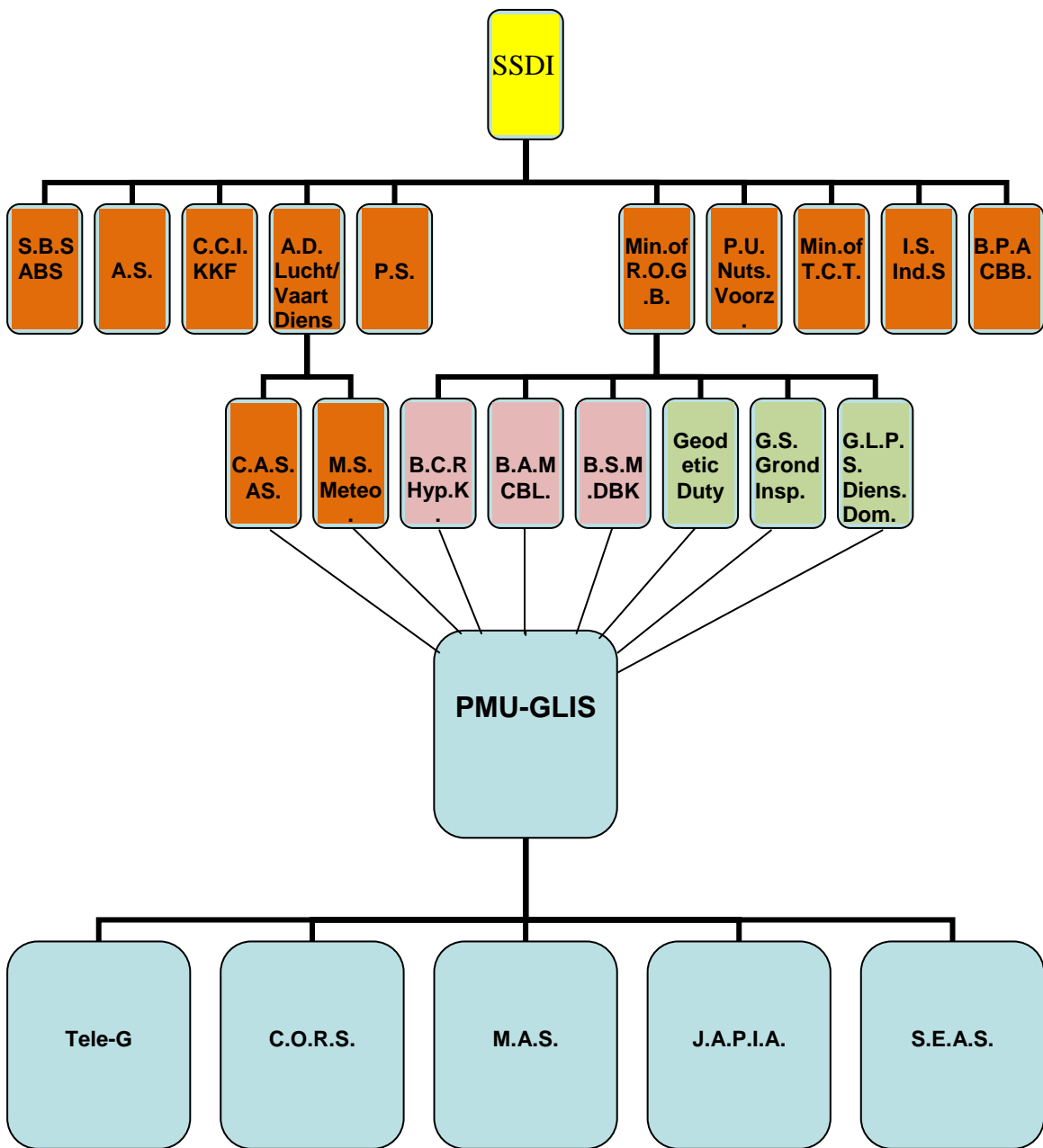
- Inter-American Development Bank.
 - Ministry of Regional Affairs.
 - Office of Demographic.
 - Regional Health Service.
4. Public Utilities:
 - Suriname Electric Power Company.
 - Suriname Water Company.
 - Communication network of S.R.net and C.Q.link; Internet Service Providers: Telesur, Unica and Digicel Phone Company; International Telecommunication Union (I.T.U) and the Federal Commission of Communication.
 5. Statistics Office of Suriname, links with the Inter-American Development Bank, agriculture, education, health, demographic, poverty line, census, Police and Security data Collection and publicity.
 6. Tourism Foundation Suriname, links with the Horeca sector, Tour Operations, Airways Company, Transport and Mobilization and Caribbean Tourism Foundation.
 7. Civil Aviation Department of Suriname links with Air traffic Control Service, Meteorology Service of Suriname, Civil Safety Authority Suriname (CASAS), Federal Aviation Administration and the International Civil (ICAO).
 8. The Chamber of Commerce and Industry; links with Suriname Commerce Union, Association of Surinamese Fabrics, Bank, Assurance, Ministry of Commerce and Industry, the University of Suriname and the Inter-American Development Bank.

5.2 Innovation of Surinam's Spatial Data Infrastructure

The outdated and fragmented geo-data system is subject to innovation in the context of digitalization, transformation of data in GIS and application of G.P.S., expertise and financial support according to regional and international standards. The professional use of the G.I.S. also has been introduced in Suriname some time ago, within the private sector and within the government. G.I.S. used as a professional, technology tool, arises from a sense that this tool make the processing of data, faster, better and more efficient . G.I.S. is also used for variable better measure, analyze, and visualization. Currently with donor assistance from Netherland (Sector fund) two innovations projects are carried out.

1. The project “count to plan” of the Ministry of Agriculture, Fishing and Cattle-breeding. In this project the land use in the agriculture sector of the urban and rural space is being mapped.
2. The Project Management and Unit “**Groundregistration and Landinformation system (PMU-GLIS)**”. This project involves:
 - The creation of a new Cadastre system with the aim of using G.I.S. and G.P.S. digital mapping of all plots in Suriname coupled with the administrative (ownership) data of the plots.
 - The removal of traditional land registration and administrative institutions and integration within the network of the Project Management Unit – Groundregistration and Landinformation System PMU- G.L.I.S.

The diagram below gives you an overview of the network of the Surinamese Spatial Data Infrastructure (SSDI), the level of innovation and integration in the P.M.U.-G.L.I.S.



- Level of Innovation:
- Absolute (traditional)
 - Analogic map
 - Digital
 - G.I.S / G.P.S.

Acronyms

1. S.B.S.: Suriname Bureau (Office) of Statistics (ABS).
2. A.S.: Agriculture Sector
3. C.C.I.:Chamber of Commerce and Industry(KKF).
4. A.D.: Airtraffic Duty
5. P.S.: Police and Security
6. R.O.G.B.: Ministry of Space Arrangement Ground and Forestry Management
7. P.U.: Public Utilities (Nuts Voorzieningen)
8. T.C.T.: Ministry of Transport Communication and Tourism
9. I.S.: Industry Sector
10. B.P.A. :Bureau of Population Administration (CBB).
11. B.A.M.: Bureau of Airtraffic Mapping out (CBL).
12. B.S.M.: Bureau of Soil Mapping out (DBK)
13. B.C.R.: Bureau of Cadastre Register (Dom.)
14. G.S.: Ground Survey
15. G.L.P.S.: Government Land Property Service
16. P.M.U.-G.L.I.S.: Project Management Unit Groundregistration and Landinformation System
17. TELE-G: SurinameTelecommunication Network
18. C.O.R.S.: Continuously Operating Reference Station
19. M.A.S.: Maritime Authority Suriname
20. J.A.P.I.A.: Johan Adolf Pengel International Airport
21. S.E.A.S.: Surveillance of Amazonian Environment Satellite-assisted

5.3 The Origin and Geodetic Activities of the P.M.U.-G.L.I.S.

The improvement of land registration in Suriname is already a few decades a subject of discussion. The first plan on this issue was only the introduction of a modern Cadastre system. Over the years the activities of land administration deteriorated that no longer can be spoken of only the creation of a national register but a new Ground and land Registration Information System . Surinamese and Dutch experts, led by the Dutch Cadastre System, would have the aim, in addition to the introduction of a land registration system upgrading the departments dealing with land.

The Geodetic P.M.U.-G.L.I.S. activities aims to provide future users of the system of guidance in the use and application of otho photos, an accelerated process for getting domain land application from the submission of the application until the approval, establishment of a National Geodetic Reference System, geometric structure, and the digitalization and preservation of Cadastre register.

5.4 Partnership with Relevant Institutions

The P.M.U.-G.L.I.S. has since the start of the project various training and workshops organized by national and international institutions related to research and implement of the integral geo-data system.

A partnership with the Telecommunication Network Suriname (Tele-G) is related to the installation and use of the C.O.R.S. "station. C.O.R.S. is Continuously Operating Reference Station in connection with the central computer of the National Geodetic

Survey "in the United States of America, which manages U.S. C.O.R.S. network. With the installation of C.O.R.S. it is possible to use GPS system measurements. And to use these measurements in an appropriate way, its base is installed in Suriname territory. The stations are located at the site of the Maritime Authority of Suriname in Paramaribo, at the International Airport Zanderij and in the office of Tele-G in the district Nickerie.

Another partnership agreement was signed with the Amazon Conservation Team Suriname (ACTS). The A.C.T.S. is committed to preserve the biodiversity, the environment and the indigenous (Amerindian) cultures in the domestic - as part of the Amazon rain forest-.

In 2006, an agreement was signed with Surveillance of Amazonian Environment Satellite-assisted (SEAS) in Cayenne, French Guiana for the reception of satellite images.

The concept of P.M.U.-G.L.I.S. fits the context of a strategic, sustainable and transparent planning and decision making for the Surinamese state.

6. Strategic Economy Policy of Surinam Addressing National, Regional and Global Issues

6.1 The Small Scale Economy of Suriname

In international trade, the economy of Suriname is defined in the category of countries with small economies. But financial markets in smaller economy have the potential, in theory to provide important benefits. This includes more effective monetary and fiscal policies, higher risk transfer, increased corporate financing, and integration into regional and the world economy.

Since independence in 1975 Suriname handled various strategic development models used for diversification of the economy. By additional bilateral and multilateral cooperation as donor assistance projects were used to strengthen the economy.

The bilateral development cooperation between the Dutch and Suriname which was launched after independence in 1975, became "Sectorfund cooperation" in 2000. The sectoral approach is a procedure that programs, projects and budgets in a coherent analytical framework with the aim to achieve sustainable economic growth.

In 2008 EUR 42.7 million was invested in Suriname, from which EUR 22 million was spent to strengthen the business climate. The rest was devoted to good government, education, reproductive health, civil society participation, environment, water and cultural heritage. The "Sectorfund cooperation" has been succeeded by "The Facility Twinning Suriname (U.T.S.N)" which provides micro-credit to NGOs and entrepreneurs. In 2008 , 104 projects were approved and funded for an amount of EUR 12 million. In addition, EUR 90 million aid from the donor United Nations, European Union and I.D.B. imitated a "Spinoff effect" by the involvement of local entrepreneurs in projects.

6.2 I.D.B. Decentralization Project

The Inter-American Development Bank is the main source of multilateral development lending for Suriname, which joined the I.D.B. in 1980. The Bank's total

approved loans for the country by mid 2004 totaled US 96 million. On a per capita basis, Suriname is one of the I.D.B. most important beneficiaries of grant resources for technical cooperation which totaled more than USD 25 million. The Bank and Suriname share a joint strategy of supporting reforms that promote private sector growth, improve governance, modernization the state, develop human resources, advance social inclusion, protect the environment and improve macro-economic management.

Among Surinam's recent modernization initiatives is an outgoing long-range project to decentralization government administration, which at present is excessively concentrated in the capital. With the support of USD 4.9 million in the first phase and USD 15 million in the second phase (2009), the central government is in the process of creating representative local government in ten administrative districts with taxation powers.

The local authorities in the ten districts supply an important share in the population administration, the census, election, and registration of social destitutes. The new structure will replace a system in which authority in the country's districts is vested in a commissioner appointed by the central government. The reform is expected to improve service, infrastructure, environment and governance.

6.3 Suriname and the Economic World Crisis

The Surinamese government has USD 700 million donor assistance and own resources invested to soften the effects of the economic worldcrisis on Suriname. It is expected that because of the economic worldcrisis the economy of Suriname shall slow down with 3%. Dissappointing incomes in 2009 from export products: bauxite, oil; decrease of foreign tourists and the departure of the multinational B.H.P. Billiton will have an influence on the economy and will lead to joblosses.

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