



Diagnostic of the current condition to promote water governance and reduce the vulnerability of the economic sector in Nickerie District

Suriname



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THE INITIAL PROPOSAL

The context of the initial proposal on Water and Sanitation was a regional Global Environment Facility-CReW+ project implemented in 18 Caribbean Countries supported by GIZ, IDB, and United Nation's Environment Program. A baseline study was developed during the months of August-September (documentary study) and October-November missions to Suriname in 2022, by ICAP's technical advisory support team.¹

Baseline study addressed the country's needs and the government's legal, and institutional setting for integrated water resources (IWRM) and water and waste management (IWWM), national public investment and international technical cooperation and funding. The research team established interviews and networking with government counterparts, reviewed documents, study reports, and project proposals, which enabled an appraisal and prospective view regarding water, waste, sanitation, governance, and institutional management, considering water as a strategic but vulnerable resource in sustainable development planning, also referred to Disaster Risk Management (DRM) and Climate Change Adaptation (CCA).

SUMMARY OF BASELINE STUDY FINDINGS

Suriname enjoys a significant wealth of water resources. Nevertheless, this is marked by a relevant dispersion of institutions and sectors with direct and indirect responsibility for water and sanitation, lacking interconnected coordination, planning and execution of agreements and potential results-based proposals drafted with support of international technical cooperation agencies present during the last five to

¹ The Central American Public Administration Institute, or ICAP by its acronym in Spanish, is a regional organization within the Central American Integration System, or SICA. ICAP's mission is to train SICA's civil servants and advise their governments on the analysis and execution of its public administration's improvement reforms. ICAP has consolidated its expertise and academic offer referred to research, knowledge transfer, consultancy, and technical assistance in the region, and globally. ICAP offers different academic PhD, MSc, and MA programs in topics such as Corporate Sciences, Public Administration, Public Acquisitions, Local, Environmental, and Health Management, in Quality Management, Project Management, and Social Management, contributing to the intellectual and productive profile of public and private professionals and organizations in the region.

seven years.²

CURRENT AND POTENTIAL RISKS MENTIONED IN THE BASELINE STUDY REPORT

Eighty percent of population concentrated along the flat coastland, are exposed to river floods, potential sea rise floods, saline intrusion, and poor waste management, due to outdated canals and drainage system, stagnant sludge, and waste in predominantly urban settings. This tends to deteriorate settlements, infrastructure, and business activities, increasing economic, social, environmental, and social risk, along with potential political risks, if acknowledged poor governance persists.

Baseline study report also mentions, as a relevant guideline to be considered, the way in which the following question is answered and addressed by all involved stakeholders: ***What cannot be lost, damaged, or interrupted due to fulfillment of foreseeable risk?***

Addressing this question leads to adequate incorporation of IWRM in overall sustainable development planning issues, governmental responsibilities, civil society awareness and fundamental business continuity and improvement, all on behalf of most relevant population settlements, community interests, public and private investments, and achievements.

This leads us to acknowledge the urgency of timely decisions and actions, such as the following:

1. There is a need to overcome institutional dispersion, reduce potential loss of public and institutional credibility, and economic, environmental, and social deterioration.
2. Establish required legal, administrative, institutional, and interinstitutional norms and responsibilities, with the required frameworks to control and reduce activities and processes which continue to create environmental vulnerability and risk.

² This has been clearly established in the ***“Water, sanitation, governance, and sustainable development in Suriname”*** report presented by ICAP in April 2023. In this context, Water Forum Suriname needs to be highlighted as a relevant national based proposal. Lack of explicit evidence during baseline study, suggests that there is a need for follow up and implementation of WFS situational analysis findings and proposed Action Plan.

3. Address foreseeable degradation of land, and assets, safeguarding both public and private resources, maintaining and improving health standards and social wellbeing through DRM and CCA schemes, constructing timely scenarios: a) five years; b) 10 years; 25 years ahead.

THE ORIGIN OF 2nd PHASE PROPOSAL

At the request of former Minister of ROM (*Ruimtelijke Ordening en Milieu*), a 2nd request was made to GIZ, during the 1st trimester of 2023, under the format of a Nickerie District Pilot Project, defined as field research, with the purpose of developing a management and action plan as a contribution to the protection of the population of the district from health risks associated with inadequate sanitation, including the already identified rat infestation emergency.

The request focused on environmental and health concerns in Nickerie as an agricultural district where rice is grown on a large scale for both local use and export.

The rat infestation was then viewed as a combined environmental, economic, social and health risk.

PROJECT COMPONENTS.

COMPONENT 1: Diagnosis of current situation and increased risk potentials in Nickerie

1. A field trip mission to visit and document IWRM/IWWM risk scenarios in Nickerie.
2. Previously, documents and other available and secondary sources will be reviewed, in preparation for field trip, and on behalf of action plan workshop.
3. Local authorities, public institutions, private entities, and community-based stakeholders will be interviewed, along with on the field observations.
4. Draft report will be presented during workshop, to gather inputs for discussing overall management, possible pipeline projects, potential financial options, and international cooperation alternatives.

COMPONENT 2: Contribute to safeguard activities which generate goods and services

1. Document existing water, infrastructure and practices which contaminate and degrade the environment, with short and medium-term effects on sustainable economic activities, communities, and their overall health conditions.
2. A Workshop will enable consulting, formulating, and evaluating proposals with strategic public, private, and community stakeholders, within a Disaster Risk Management and Reduction (DRM/DRR) framework.
3. Efforts will be aimed at generating an action plan, addressing sustainable economic activities, environmental, sanitation and health risks referred to water resources management and institutional governance in Nickerie.

MAIN FINDINGS

1. Nickerie's Commissioner had already established and assigned an interinstitutional Commission, to do research on the rat infestation emergency. This Commission had already presented an initial report to the President and was now working on an updated report which would include responding to the President's comments, and again soon presented to Him. This was followed by a second study, implemented by a university research team.
2. According to the above, ROM/ICAP/GIZ study was the third study. The difference with respect to the two previous studies, was that ICAP/GIZ did not focus on rat infestation, addressing a more holistic approach referred to the current situation in IWWM in the district, considering the rice sector's Disaster Risk Management and Sustainable Development potentials, Climate Change Adaptation framework and impending El Niño Southern Oscillation (ENSO) prognosis for 2023-2024 and its potential effects.
3. Thus said, rats are an ever-present part of the Nickerie's rice sector scenario. Increased infestation and emergency were obviously related to IWRM and Waste Management.
 - a. Rat infestation occurred during harvest season, and affected farmers experienced significant loss (January - March 2023).
 - b. A combination of increased rain pattern, and deteriorated road infrastructure limited complete harvesting, mainly by large farmers. This generated rice waste on roads and farms, as a significant input on behalf of increased reproduction of rat population.
 - c. A relevant complementary factor came from farmers living in west Nickerie, with rented plots and farming in east Nickerie, not concerned with local problems, who did not respond to post-harvest maintenance as part of their responsibility.
 - d. In Nickerie's rice sector, water and sanitation faces two interactive dimensions:

- i. Water infrastructure and dynamics include updating pumping mechanisms, and functional sluices, dams, and channels (1ary, 2ary, and 3ary) for both irrigation (during the dry season), and drainage (during the rainy season), affected by recurrent and alternative floods and droughts patterns.
 - ii. In the above context, farmers and community organization are supposed to share responsibility with Government institutions in roads and post-harvest maintenance, which was lacking immediately before and during outbreak.
4. Part of farmers and public officers interviewed, clearly stated that rats are not the problem, and rats were not overly present during last week of May 2023.
5. Mentioned recurrently, was the lack of unity among farmers, and their disappointment, disbelief and distrust towards government, whose credibility needs to be strengthened, because of its negative influence perceived by the locals. Local authorities are expected to be bridges regarding improving dialogue, networking and implementation of recommendations and proposals. There is an opportunity for improvement for the national and local governments to improve their communication and joint efforts for the same objectives.
6. From a Disaster Risk Management perspective in support of sustainable development, rat infestation is a consequence, referred to a more complex and dynamic interconnection of factors. Rat outbreaks should be considered as an always potential and recurrent threat, unless vulnerabilities and risk pattern are controlled and reduced:
 - a. Government institutions, Civil Society and most of all, farmers, need to introduce or emphasize preventive measures to overcome rice sector's vulnerability, exposed by rat infestation dynamics.
 - b. This includes the need to strengthen organization, interaction, and cooperation among stakeholders, at both community and productive levels, which seem to be poor, insufficient, or inadequate and limits dialogue, proposals, and agreements.
 - c. The identified lack of (or poor) organization and shared responsibilities influences poor governance, insufficient networking, and management.
 - d. Clearly stated by those interviewed, was the fact that farmers (small, medium, and large) cannot survive without each other, which also includes support from mills owners.
7. Stakeholder's dispersed involvement and practices, all express lack of organization of the rice sector on a whole. Short term views and decisions seems to prevail along with a very partial and segmented view of agricultural sector's potential.
 - a. Farmers focus exclusively on immediate gratification and income and are not considered open to innovation.

- b. To this respect, recommendations and actions need to be continuous and sustainable not short term and immediate.

- 8. Acknowledged misinformed use of pesticides and fertilizers, and insufficient dissemination of information, technical advice, training, and support, includes the need for more research on seedlings, agrochemical, and soil. Also capable of drafting and developing, improved vulnerability resistant Phyto sanitarian measures.
 - a. As opposed to neighboring Guyana, Nickerie's rice seedlings are not considered resistant to pests and insects.
 - b. Rats are not the only hazard. "Wismisi" birds as a national endangered and protected species also become a nuisance during flowering stage. This, under favorable conditions, could also become a future plague.
 - c. With regards to communities and husbandry, farmers confirm cattle grazing on lands affected by agrochemical contamination. This also affects the health of the local communities, when disseminated by plane, since the population will inhale the agrochemicals exposed in the air.

- 9. What are traditional and expected effects of ENSO (*El Niño-Southern Oscillation*) in Nickerie? El Niño is expected to begin in July 2023 and last more than 18-20 months. Are stakeholders and is overall rice sector prepared?

- 10. Foreseeable Climate Change effects and expected ecological imbalance, also require inviting specialists and experts to do research, generate potential scenarios and mitigation plans. To this respect, a couple of relevant questions were posted:
 - a. Is rice productivity declining in Nickerie (beyond the rat infestation incident)?
 - b. Is pertinent data available?
 - c. If this is so, what are the recommended measures to be taken and by whom?
 - d. Is there a potential generational loss for continued rice farming in Nickerie, because of young generation's lack of interests and incentives?
 - e. To which we add another question: Are 2025-2030 views feasible and pertinent?

- 11. The overall and integrated concept of access to financial and nonfinancial resources, on behalf of strengthened rice production organization and it's dynamics, including diversification, marketing, and multiphase revenues, seem poor and lacking, which limits integrating or interconnecting rice farming and harvesting, with agro-industrial rice derivatives, diversified financing, improving infrastructural servicing and commercial facilities.

- 12. This posts the following question: What Win-Win schemes and incentives, are to be promoted on behalf of improved networking and joint ventures, also overcoming the new generation's lack of interest? Thus said, prospective development planning views, need to be fully incorporated much beyond circumstantial rat infestation episode.

13. Nickerie's market is a good example of preventive measures supported by the District Commissioner's Office. This includes environmental, health and administrative organization with prospective views, communication, and coordination among stakeholders: Market management, sellers, Health Sector's periodic review and poisoning controls, Fire Company support, and Ministry of Public Works rehabilitation of riverside erosion problems.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

1. The ROM-GIZ-ICAP study is an input whose guiding principle should be based on Nickerie's Sustainable Development. The study offers a potential pipeline project portfolio and investment profiles, as part of public management updated policies, with the purpose of overcoming the rice sector's identified needs, limitations, and vulnerability.³
2. The many factors included in rice sector scenario's vulnerability and sustainable development potentials, do not have the same priority, urgency, timing, or feasibility to be properly addressed.
3. From this perspective, it is recommended that the many critical features obtained by previous studies, also present in this report, be discussed and prioritized for assigning responsibilities, drafting proposals, and negotiating with International Technical Cooperation Agencies, which have the expertise, the will to share experiences, and are capable of granting loans and non-reimbursable funding support.
4. Nickerie District's sustainable development needs to move beyond rice as a "only" and primary product.⁴ To only produce and market rice, which lacks exploring and developing other rice derivatives options; ignoring complementary agro-industrial goods (husbandry, fisheries, services, etc.). This segmented product chain view, ignores the concept or principle of aggregate value.

³ Research and diagnosis will always be needed but is worthless if lacking explicit proposals, along with investment profiles, action plans, very precise responsibilities and implementation schemes, relying on both national and international funding and technical support.

⁴ Current research developed in India (Indian Institute of Rice Research, Rajendranagar, Hyderabad; entrepreneur.india.co, Kamla Nagar, New Delhi); by Moraes, Carlos A. M. (2014) et al; ARLECO PRODUCCIONES Marketing specialists (2023); and AgriNews SL (2022), mention a diversity of valued income generating rice and rice husk derivatives.

5. Organizational strengthening is required with regards to three dimensions: a) Primarily, improving rice sector's productive organization, and more interconnected, complementary and income generating activities; b) social organization, awareness creation and training of water boards and communities; and most important, strengthening of institutional networking, planning and explicit support to Nickerie District's sustainable development on a whole.
6. To this respect and as a complementary measure, there is also the need to strengthen Nickerie's Rice Institute or create an entity which brings together the multiple actors, capable of addressing their diverse needs, improving networking among them, and clearly incorporating the bigger picture of an improved, holistic and more initiative-taking rice sector.
7. The interinstitutional network to be called upon for working together to improve dialogue, coordination and shared but explicit complementary responsibilities, include: a) the Ministry of Spatial Planning and Environment; b) the Ministry of Agriculture, Husbandry and Fisheries; c) Nickerie District Commissioner's Office.⁵ And, expectedly, d) the Ministry of Public Works in all reference to roads and water management infrastructure.
8. After presenting draft report to Mr. Anand Ramidsoensing, Permanent Secretary, Ministry of Agriculture, Husbandry and Fisheries; and Mr. Ritesh Sardjoe, Permanent Secretary, ROM, a virtual WhatsApp meeting was agreed, to be arranged for future date, with ICAP/GIZ counterparts, as a means of establishing follow up agreements, including exploring further support by available International Technical Cooperation Agencies, addressing findings and recommendations, coinciding with Nickerie's Workshop results and District Commissioner's views and expectations.

Nickerie Pilot Project pipeline proposals and potential investment plan

The realization of such pilot will be the result of the implementation of preliminary activities in the management area within the local government. It will be dependent on the updating of policies and public management, with the purpose of overcoming the deficiencies within IWWM at a local level and with important stakeholders such as the

⁵ With the interinstitutional Commission and its institutional strengthening goals, data collection and monitoring system proposals.

rice sector, which has its needs, limitations, and vulnerabilities. It also refers to perspectives for negotiating with International Technical Cooperation Agencies, that may have the required expertise, and can grant loans and non-reimbursable financial support.

ICAP/GIZ did not focus on the rat infestation. The mission developed a more holistic approach that addresses Disaster Risk Management perspectives and Sustainable Development potentials of the rice sector, focusing the strengthening and development of the IWWM in the area, considering Climate Change Adaptation and the imminent forecast of El Niño (ENSO) for 2023-2024 and its future effects on the rice sector's potential and capacities.

Rats are an ever-present part of the Nickerie rice scene. Rat outbreaks should be viewed as an ever potential and recurring threat unless vulnerability and disaster risk patterns are controlled and reduced. The infestation of rats during the harvest season (January to March 2023), responded to an increase in the rainfall regime and the deterioration of the road infrastructure, which limited completing the harvest, mainly by large farmers. This generated rice waste on roads and farms, as an important input that favored a rapid and greater reproduction of the rat population.

This was further aided by farmers who, living in western Nickerie, leased rice plots in eastern Nickerie. They were not concerned about local problems and, therefore, did not respond as part of their responsibility, to the post-harvest maintenance of plots and roads.

The Investment Plan Proposal is outlined to reduce the vulnerability of the rice sector and promote sustainable development of the Nickerie District, in the context of Disaster Risk Management (DRM) and Climate Change Adaptation (CCA), which is broken down into four investment options or project profiles. National dialogues and negotiations, and with international Technical Cooperation Agencies, should include the participation of the Ministries of Spatial Planning and Environment; of Agriculture,

Livestock and Fisheries; in addition to the Nickerie District Commissioner.

1st Profile: Strengthen the productive and producer organization, in addition to water management

Identified need or problem situation

The lack of unity among the farmers was repeatedly mentioned, including their disappointment, disbelief and distrust towards the government, whose credibility needs to be strengthened, due to its negative influence. This expresses the need to strengthen the organization, networking, and cooperation between the stakeholders, both at the community and productive level, considered deficient, insufficient, or inadequate, limiting dialogue, proposals, agreements, and enforcement. Short-term, partial, and segmented visions and decisions prevail among farmers, regarding the rice sector's potential. Farmers focus exclusively on income and immediate gratification and are not considered open to innovation.

To date, the dynamics and the scenario that prevails in Nickerie is one of rice monocrop culture. Nickerie's sustainable development is required to go beyond "only" producing and marketing rice as a "single" and primary product, with a poor and segmented vision of the productive chain. This lack exploring and developing other options, capable of generating rice derivatives, incorporating complementary agro-industrial goods. All the above limits projecting rice harvesting and crops, which may include agro-industrial derivatives, diversified financing, better infrastructure, and commercial interconnected services. To be added, several interviewed informants stated that the government only focuses on rice, ignoring the concept of added value.

Dispersed practices and participation of stakeholders express a lack of organization of the whole rice sector. There were interviewees who clearly stated that farmers (small, medium, and large), including mill owners, cannot survive without each other. However,

this requires training and strengthening.

Purpose: Strengthen farmers organization and productive diversification, with broader marketing and income generation alternatives, to control and reduce the rice sector's vulnerability.

Component 1

Explore and promote the development of productive options, and added value, derived from rice, such as:

- a) Rice as an input in producing agro-industrial processed goods.
- b) Activities and goods, complementary to other agricultural and livestock activities, marketing, and services.
- c) Rice husk derivatives⁶.
- d) Required dissemination of information and study reports, job training, infrastructure for processing, marketing calculations and services.
- e) Multiple benefit schemes and incentives should be promoted, enabling better networking and joint ventures, which could also help overcome the lack of interest of the new generation.

Component 2

Generate required awareness of producers regarding the importance of being more organized. This would include:

- a) Technical assistance and training on organizational alternatives and cooperative work.
- b) Training in resource management, mechanisms, and forms of communication.
- c) How to make decisions and execute results-oriented actions.
- d) It includes training on Water Boards functions and the relevance of the role they play.

2nd Profile: Research program and information system: rice production, derivatives, marketing, and risks in the face of the El Niño Phenomenon and

⁶ Current research developed in India (Indian Institute of Rice Research, Rajendranagar, Hyderabad; entrepreneur.india.co, Kamla Nagar, New Delhi); by Moraes, Carlos AM (2014) et al; ARLECO PRODUCCIONES Marketing Specialists (2023); and AgriNews SL (2022), mention a diversity of valuable derivatives of rice and rice husks (poultry) that generate income.

Climate Change.

Identified need or problem situation:

During the study it was possible to verify a misinformed use of pesticides and fertilizers, denounced both by producers and by spokespersons of public institutions consulted. A complaint for insufficient dissemination of information, technical advice, training, and support prevailed among producers. They expressly pointed out the need to satisfy the demand for more research and information on seeds, agrochemicals (fertilizers and pesticides) and soils.

The foreseeable effects of Climate Change and the expected environmental imbalance require inviting specialists to do research, generate potential scenarios and mitigation plans that could help solve doubts referred to relevant questions that arose during the study. Included among the questions and most relevant topics identified are the following:

1. Is there a decrease in the productivity levels of the rice sector?
2. How true is the new generation's lack of interest in participating in the rice sector's continuity?
3. Is there data referring to the two previous questions?
4. If so, what actions are required and under whose responsibility?
5. More and better information is needed on seeds, soils, use of agrochemicals and pesticides.
6. Information, training, and inputs is required to organize improved diversification and marketing of rice products, and thus build a greater production value chain.
7. What is the role of rice in Suriname's food security?

The foregoing also refers to the need to build five years, 10 years, and 25 years scenarios, which may allow formulating and implementing plans, investments, and actions, to pursue safeguarding livelihoods, financial and non-financial resources, and assets, both public and private, along with improved health and social welfare standards, through Disaster Risk Management and Climate Change Adaptation schemes.

Purpose: produce and disseminate information, knowledge, and scenarios, that satisfy the needs and demands of producers, organization, productive planning; along with and public officers with regards to technical assistance and collaboration in controlling and reducing vulnerabilities.

Component 1

Strengthen or create a research entity and/or program on rice in Nickerie, and establish, through consultation with stakeholders, a research agenda that addresses priority issues that could be linked to organizational modernization, productive diversification, sustainable development of the sector, reducing vulnerability in the context of DRM and CCA. The production of information, greater knowledge and economic, environmental and risk scenarios, will allow planning towards productive diversification, in addition to seeking more guaranteed sustainable investments, given the forecasts of Climate Change.

Component 2

Develop and support the improved stakeholder's arguments, criteria and negotiation mechanisms when requesting technical assistance and financial support for projects, with national authorities and representatives of International Technical Cooperation Agencies.

3rd Profile: Strengthening of public institutions and decision-making in Nickerie.

Identified need or problem situation:

Improved and updated administrative, legal, and inter-institutional frameworks are required, to reduce dispersed actions and the loss of credibility of public institutions. Government institutions, civil society and, -above all- farmers, need to introduce or

emphasize preventive measures to overcome the rice sector's vulnerability highlighted by the rat infestation.

The foregoing reinforces the previous project profile on research and reaffirms the relevance of creating an information system to strengthen governance, since it coincides with the need to satisfy the demand for more and better information, as the basis for planning, and decision-making, offering support from public entities to reduce vulnerability.

In this sense and as a complementary management input, there is also a need to strengthen the Nickerie Rice Institute or create an entity that would bring together the multiple stakeholders, may be capable of meeting their diverse needs, improve networking among them, and more clearly project the big picture of a more dynamic and initiative prone (proactive) rice sector.

Purpose: improve the levels of organizational efficiency in decision-making, controlling and reducing the activities and processes that create vulnerability and environmental risk, improving the levels of institutional support and credibility.

Component 1

Training program in senior public management incorporating planning issues, project management (how to formulate, evaluate, manage, and negotiate), in addition to implementation management.

Component 2

Short courses training on planning, decision making, results-based implementation, DRM and ACC.

Component 3

Create an information, monitoring and evaluation system on sustainable development and rice activity with a more holistic vision, in response to the following questions:

- a) What are the most evident vulnerabilities in the rice sector?
- b) How can they be controlled, reduced, and overcome?
- c) What information does each sector institution require?

4th Profile: Development and maintenance of infrastructure for rice production in Nickerie

Identified need or problem situation:

In terms of water and sanitation, Nickerie's rice sector faces a complex scenario. This includes the need to upgrade (modernize) pumping mechanisms and infrastructure, including sluices, dams, and primary, secondary, and tertiary functional channels for both irrigation (during the dry season) and drainage (during the rainy season), affected by alternating and recurrent flood and drought patterns. It is to be assumed that farmers and community organization share with government institutions the responsibility for road and maintenance, which was lacking immediately before and during the rat outbreak.

The immediate prospects announced by the advent of the El Niño Phenomenon (ENSO) 2023-2024, together with the forecasts of significant alteration of hydro-climatic patterns due to Climate Change, suggest serious effects on Water Resources Integrated Management in⁷ Nickerie and its rice sector. For this, it is necessary to develop foreseeable scenarios, together with the corresponding risk control, reduction, and mitigation plans. This includes calculating forecasts for possible sea level rise.

Purpose: This project profile basically refers to investments in physical infrastructure, in construction, works and maintenance; or in equipment and machinery.

⁷ Increase in the frequency and intensity of hydrological and climatic phenomena, both in the perspective of intense rains, and in the appearance and prolongation of droughts.

Component 1

Construction and maintenance of roads as part of the productive infrastructure.

Component 2

Construction, strengthening and maintenance of water infrastructure (canals, pumps, dams).

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