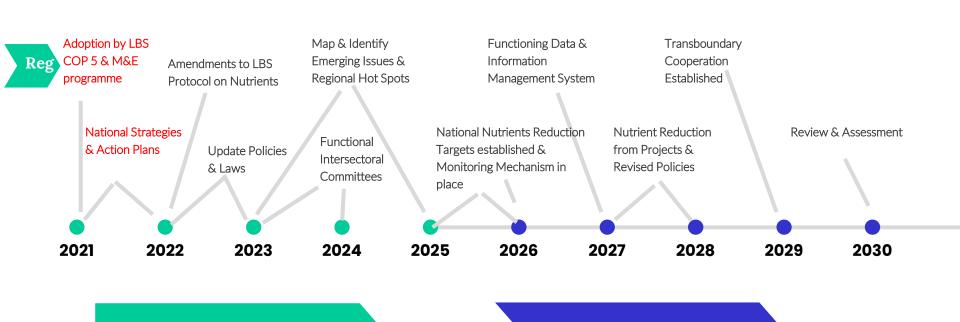


### Regional Nutrients Pollution Reduction Strategy: National & Regional Implementation

### Regional Nutrients Pollution Reduction Strategy: Indicative Timeline





**PHASE TWO** 

# CASE STUDIES FOR JAMAICA & BARBADOS ON OPTIONS FOR NUTRIENT USE EFFICIENCY & NUTRIENT MANAGEMENT VALUATION





Part of an Economic Valuation Pilot Project financed by the Global Partnership on Nutrient Management (GPNM) under UNEP Global Programme of Action for development of the Marine Environment from Land-Based Activities (GPA)

Project Consultant to UNEP Andrew Harnden, with input from Government & UNEP Staff

## Jamaica & Barbados Case Studies Project Purpose

Purpose of Case Studies on Nutrient Management Valuation for Jamaica & Barbados:

- Support the Secretariat's efforts to develop new regional quantitative discharge standards for nitrogen, and possibly also for phosphorus
- ▶ Promote and instigate improved understanding of nutrient management and prevent over-enrichment through demonstrating best practices & supporting policy options to stimulate and incentivize cost-effective action, and contribute to broader environmental sustainability benefits (for Caribbean region)
- Support UNEP Caribbean priority initiative to develop National Nutrient Reduction Action Plans

### Jamaica & Barbados Case Studies Project Activities:

The case studies involved two main activities:

- A. Investigating options for the improvement of nutrient use efficiency (NUE) (e.g. application of 4R Nutrient Stewardship Concepts Right rate, source, placement & timing), demonstrating social and economic benefits for health, environment, and the supply of food and energy
- B. Quantifying the multiple costs & benefits of meeting nutrient management targets for food security, marine, freshwater and terrestrial ecosystems, mitigation of greenhouse gases and other climate threats, and improvement of human health

### Jamaica & Barbados Case Studies Background

Achieving high levels of nutrient use efficiency (NUE) in agriculture requires adoption of BMPs to maximize:

- Nutrient recovery rates (nutrient amount harvested to nutrient amount applied) in plants
- Nutrient absorption rates in livestock
- Minimize nutrient losses from emissions, leaching, run-off and erosion

### Jamaica & Barbados Case Studies Background)

Wastewater reuse products include plant-available nutrients and vast potential for increasing production in cropping, pasture grasses, agroforestry, and revegetation of cleared and/or disturbed land

- Liquid fertilisers; Solid fertilisers; Dried faeces; Biomass and proteins; Water for irrigation and aquaculture; Energy supply in the form of biogas
- Before applying human waste as fertilizer it is necessary to remove harmful bacteria and pathogens that could be present. Heavy metals must be prevented from entering the food chain
- Reuse products have different characteristics and advantages involve a variety of technologies and methods for treatment, storage, and application



#### THANK YOU Protecting Our Caribbean Sea, Sustaining Our Future

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