



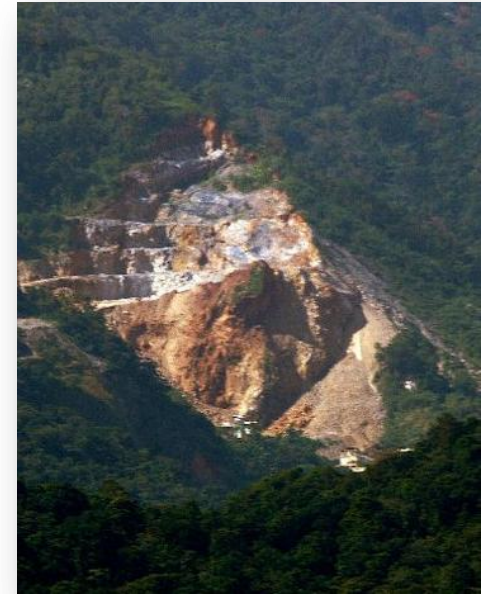
WATER AND SEWERAGE AUTHORITY
"Water Security in Every Sector"

Water Resources Agency



Water Abstraction in the

Quarrying Industry



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Mission Statement of Water Resources Agency

To effectively manage the country's water resources and promote **conservation**, **development** and **protection** of these resources, for **sustainable** use, in a cost effective and **integrated** manner to support socio economic growth.



Role and Responsibilities



- Regulation of water abstraction from the national water resource
- Oversight for the resource allocation
- Management of a permit and licensing system to regulate:
 - drilling and construction of private water wells
 - Abstraction of water from the surface water and groundwater sources.



Legislation



Water and Sewerage Act Chapter 54:40 Act 16 of 1965

Part III: Responsibility for Water and Planning

Section 42- promotion of water conservation and proper use of resource

Section 44- discretion to grant license to abstract water

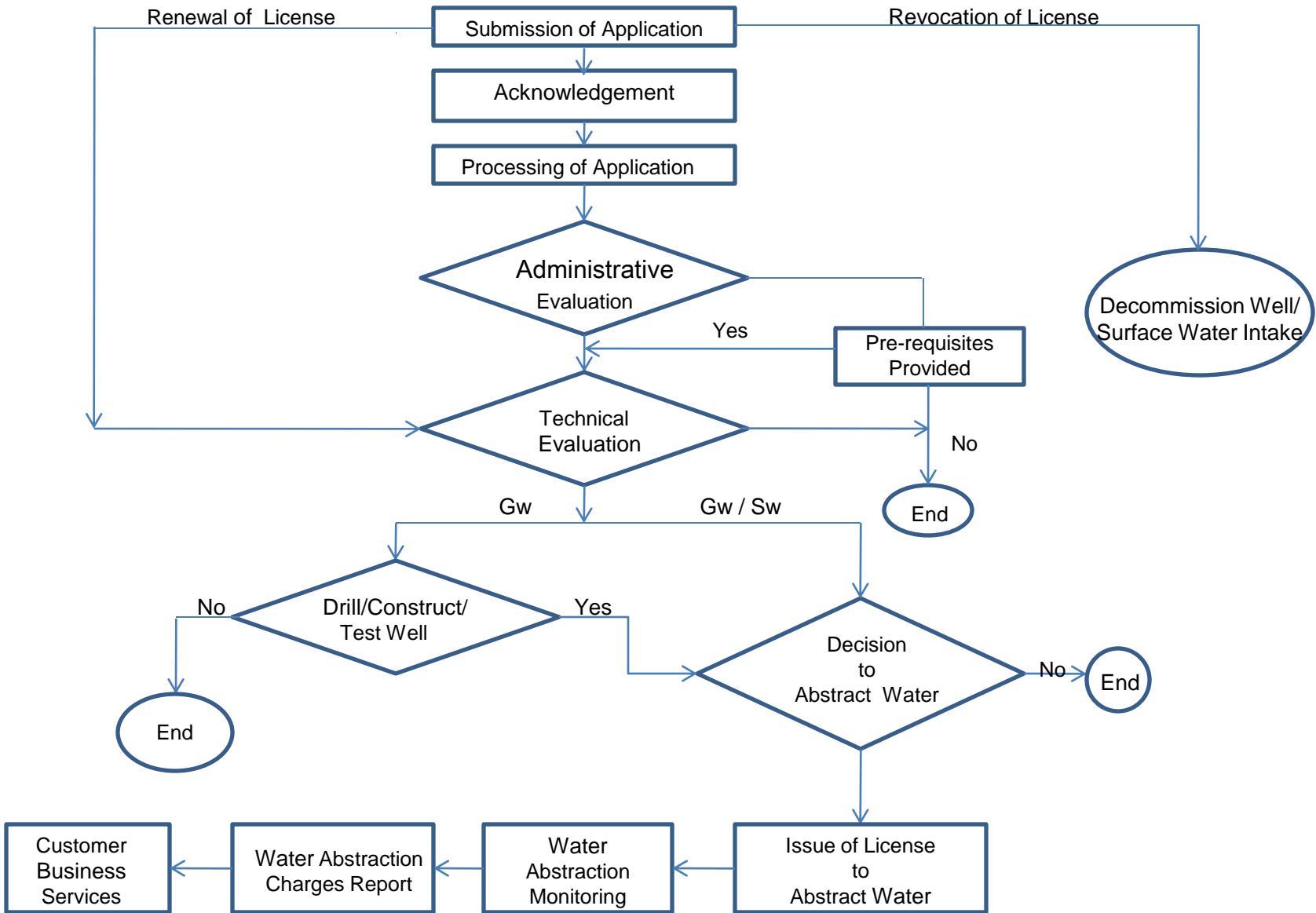
Section 46- requirements for record keeping and information provision

Section 47- control of abstraction and waste prevention



Regulatory and Licensing Process Map

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Legal Abstractions



- Number of wash plants with License to Abstract Water: **7**
- Location of wash plants: **Northern Basin**
- Total Annual Licensed Abstraction: **1.2MCM (243.4 MG)**
- Water Abstraction Charge: **\$0.36/cubic metres (220gal)**



Challenges in the Industry



Water Pollution

- Increased turbidity levels in watercourses
 - Increased costs to treat water for potable supply
 - Decreased carrying capacity of river channels
 - Sedimentation contributes to flooding in lower reaches of river courses
 - Impairment to in-stream ecology and other uses of water resource

Degradation of Aquifer Recharge Areas

- Loss of recharge/outcrop areas

Regularization of Illegal Water Abstractions

- Absence of legal tenure



Monitoring and Enforcement

- Illegal excavations of aggregate from the beds of rivers/ water courses
- Poor maintenance of on-site silt traps and settling ponds
- Inadequate human resources to support the enforcement of compliance.



Recommendations for the Industry



Operational

- Enforce the installation of water recycling and closed-loop circulation system
- **Site points of water abstraction downstream of discharge points**
- Establish and implement a De-watering Plan
- Apply for License to Abstract Water for de-watering of pits and ponds
- Pursue water re-use strategies
- Monitor and record water levels encountered in test borehole and excavation pits
- Adopt voluntary stewardship.



Institutional

- Identify and designate the mining zones throughout Trinidad and Tobago
- Enforce the maximum depth of excavation stipulated in Quarry License
- Consult with WRA/WASA before any variation to depth of excavation
- Define in the Quarry License the permissible limits of TSS and TDS
- Include as pre-requisites for obtaining a Processing License
 - A License to Abstract Water from the WRA/WASA
 - A Trade Discharge Permit from the Environmental Management Authority (EMA)
- Pursue closer collaboration with key stakeholders; MEEA, EMA, WRA, Quarry Operators.



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Taken by : Stephen Broadbridge



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Thank
You