DESALINATION Equipment

(Available in South Africa)

Three excellent options for a **lightweight, effective, and semi-portable desalination setup** suited for a 12-person temporary stay in Chagos:

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1. Schenker Modular 230 (CruiseRO)

- **Capacity**: ~230 L/h (sufficient for ~12 people with ≥2 L/day each)
- **Power**: Approx. 1.5 kW AC (shore generator or solar-battery hybrid)
- **Weight**: ~95 kg – robust yet manageable
- **Highlights**: Designed for marine use with digital or touch control, automatic flushing, salinity monitoring, and energy recovery—built for efficiency in remote island environments .
- **Considerations**: Larger than personal kits but well-suited for longer-term group usage; installation requires some plumbing, though still portable if base-mounted.

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2. Zen 100 (24 VDC/AC)

- **Capacity**: 100 L/h (adequate with rationing and supplemental water management)
- **Power**: 400 W – compatible with solar or generator setups
- **Weight**: ~49 kg – easily moved by two people
- **Highlights**: Self-contained, uses energy recovery, compact, with remote panel and easy wash/flushing .
- **Considerations**: Slightly under the ideal capacity for 12 people, but water usage can be prioritized for drinking/cooking; daily production of ~2.4 m^3.

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3. QuenchSea Manual RO Kit

- **Capacity**: ~4–6 L/h (27–36 L/day per unit)
- **Weight**: ~6 kg

- **Highlights**: Completely manual—no power needed, rugged handheld lever that's affordable (~US $250) .
- **Considerations**: Many units (4–6) would be required to meet group needs, and it's labor-intensive; best suited for emergency or extreme low-power scenarios.

Bonus: Elemental Water Makers – Solar-Powered Systems

- **Type**: Containerized or plug-and-play solar RO
- **Highlights**: Tailored for remote island use—low O&M, no fossil fuel, solar-powered, deployed in South Africa .
- **Considerations**: Likely heavy and more permanent; excellent for multi-month stays with some support infrastructure.

Comparison Summary

Unit	Capacity (L/h)	Power	Weight	Suitability
Schenker Modular 230	230	~1.5 kW AC	95 kg	Best for >12 people, high output
Schenker Zen 100	100	400 W (DC/AC)	49 kg	Lightweight, good for 12 with rationing
QuenchSea Manual RO	4–6 per hour	Manual	6 kg	Backup/emergency use
Elemental Solar-RO	Variable	Solar + battery	Heavy	Ideal if solar infrastructure exists

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Recommended Strategy for our Chagos Mission

- **Primary Unit**: Go with the **Zen 100**—it's **compact**, **efficient**, and **works off solar or generator power**. At 100 L/h, we'll have enough for drinking/cooking and some hygiene if managed well.

- **Backup Option**: Bring a **QuenchSea manual RO** as an emergency fallback in case of power loss.
- **If Infrastructure Allows**: Consider a **solar-powered Elemental Water Makers system**—more sustainable and low-maintenance.
- **If Maximum Output Needed**: The **Modular 230** is best for full self-sufficiency but heavier and needs stronger power support.

Next Steps

1. Confirm how much power (generator/solar/battery) we can reliably support.
2. Arrange for shipment/supplier in **South Africa**—companies like **Schenker**, **CruiseRO**, or **Elemental Water** all have presence in the region.
3. Plan installation logistics (pump location, intake/outtake hoses, flushing procedures).
4. Do a small-scale trial before deployment to ensure maintenance and operation are smooth.

NOTE: We need to locate the Suppliers, get Quotes, and Guidance on solar-power integration / installation!