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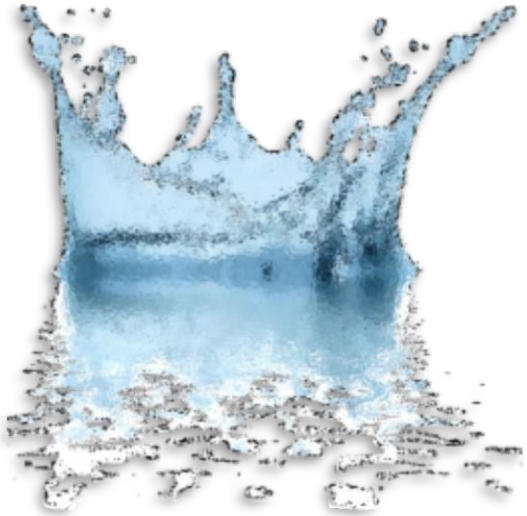
Water management in Israel in light of future challenges

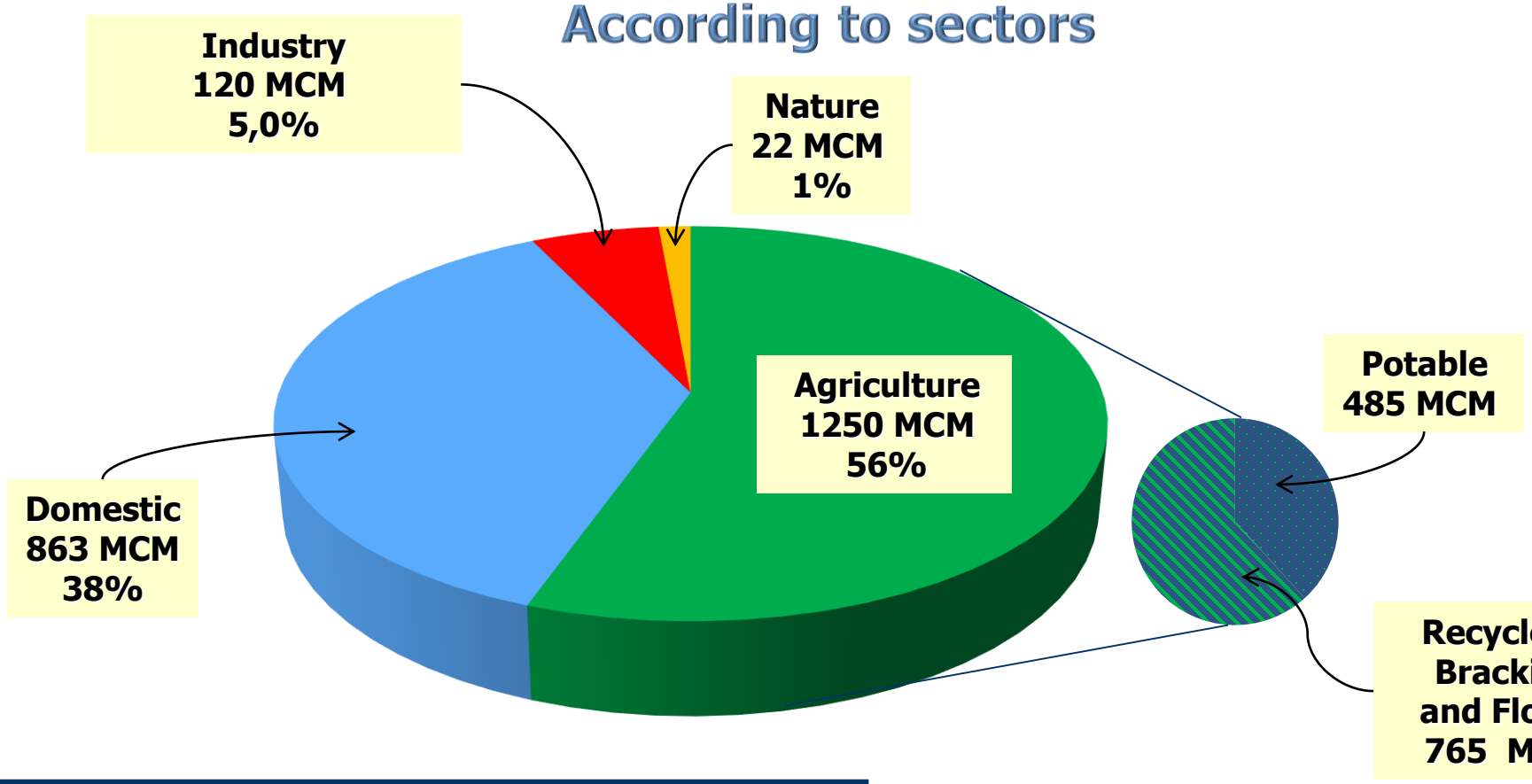


Bratislava – 17 June 2019

Guy Reshef - Director of Water quality division
Water Authority, Israel

Water Consumption in Israel

According to sectors



Total: 2253 MCM

Supply to PA, Gaza, Jordan – 136 MCM

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WATER RESOURCES ⟵ ⟶ WATER DEMAND

- Average total natural enrichment – 1.2 billion m^3/annum
- Water demand – more than 2.4 billion m^3/annum
- Current potable water demand ~ 1.5 billion m^3/annum
- Forecast for potable water demand:

2020 ~ 1.7 billion m^3/annum
2030 ~ 1.95 billion m^3/annum
2040 ~ 2.2 billion m^3/annum
2050 ~ 2.45 billion m^3/annum

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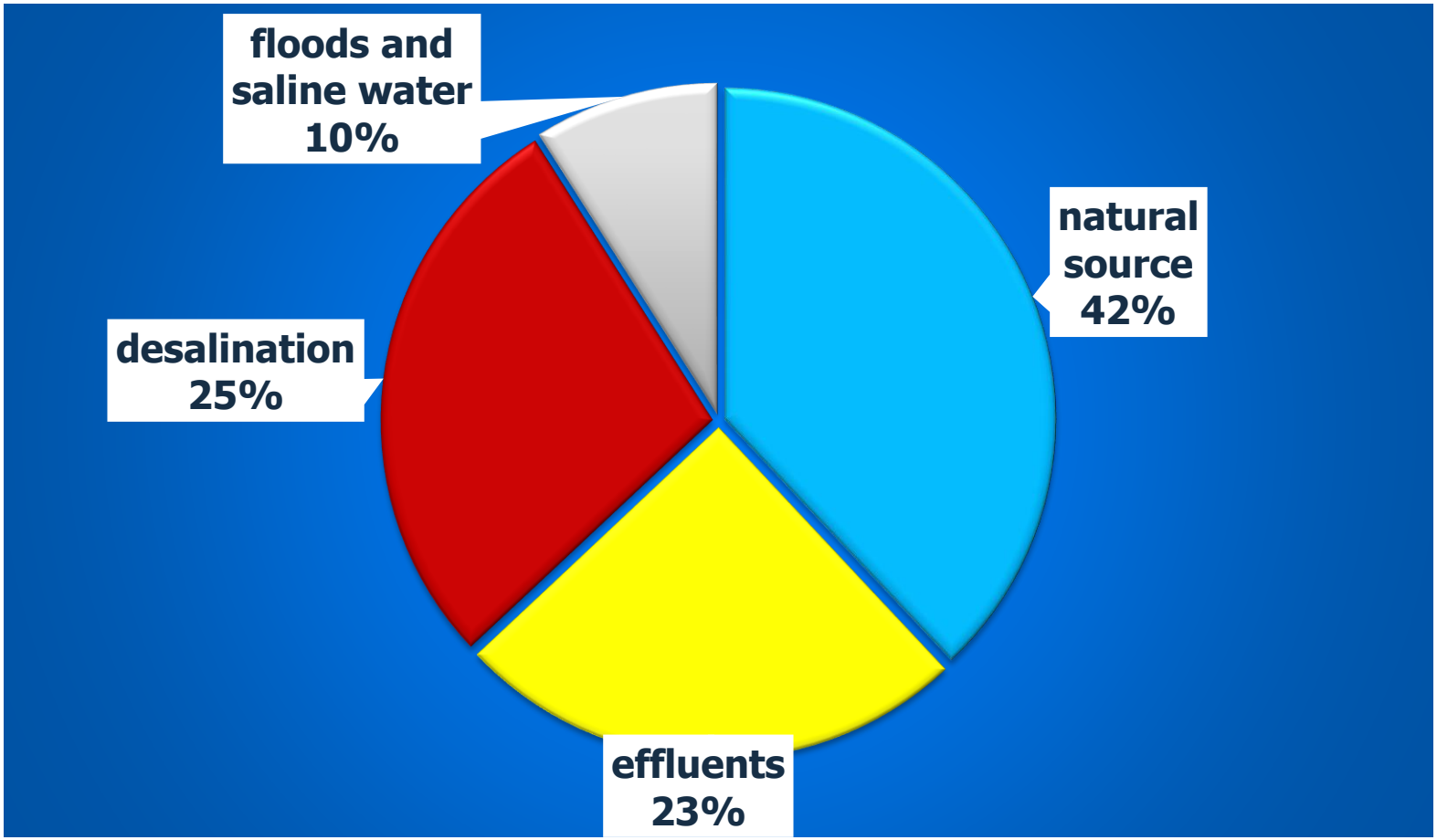
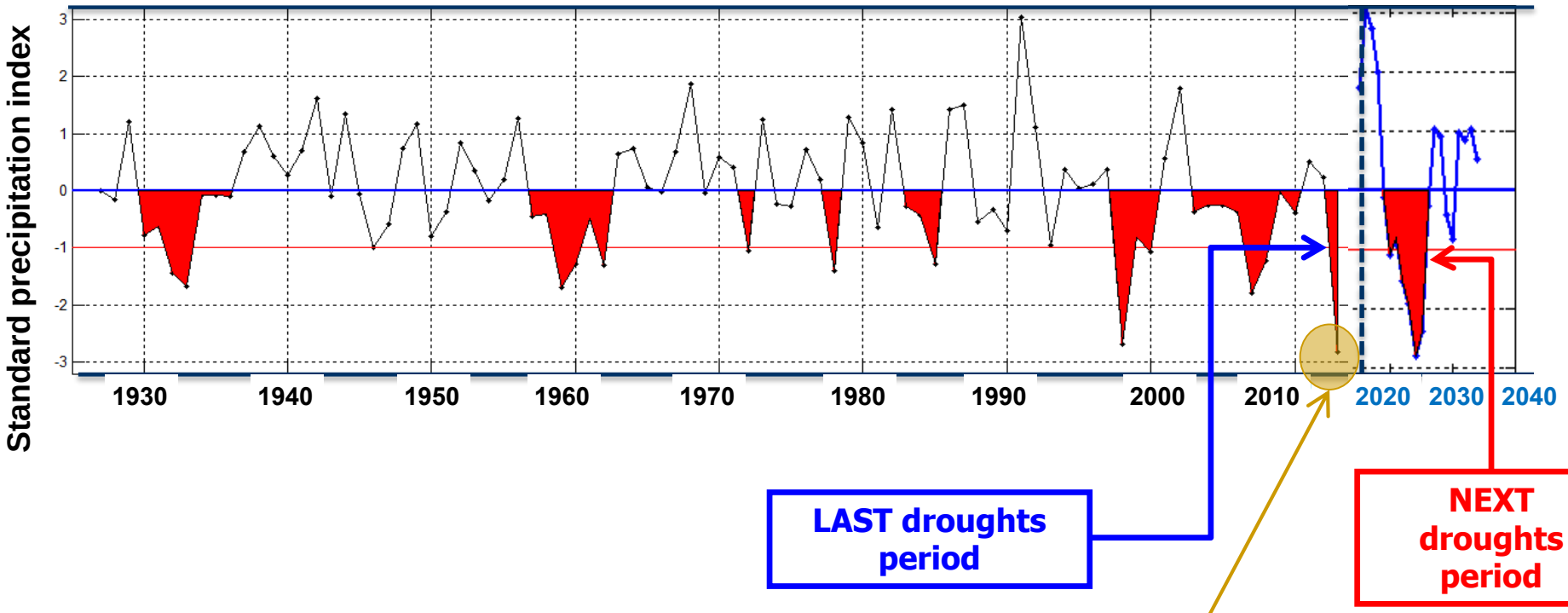
Water sources in Israel

to meet demand of 2.4 billion m3



Recharge from Rainfall

In the last decade Israel faced the most severe droughts in its history, experiencing a consecutive period of continuous decrease of precipitations far beyond the multi-annual average.



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Challenges

- Increasing potable water demand far more than natural replenishment
- Increasing population density (Israel rank 29 in the world) resulting in increasing potential for water resources pollution
- Impacts of climate change on water resources
- Impacts of reused water on water sources

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Hydrological trends in recent years

- A significant increase in summer temperatures 0.65 c/decade
- Negative trend in rainfall, but not statistically significant
- Decrease in natural recharge to groundwater basins due to reduced rainfall and hydrological memory
- A decrease in water entering the Sea of Galilee basin in northern Israel
- Climate models predict a 10% drop in rainfall, resulting in a 20% drop in water entering the Sea of Galilee

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SOLUTIONS

Moses Drawing Water from the Rock
Zabbar Parish Church

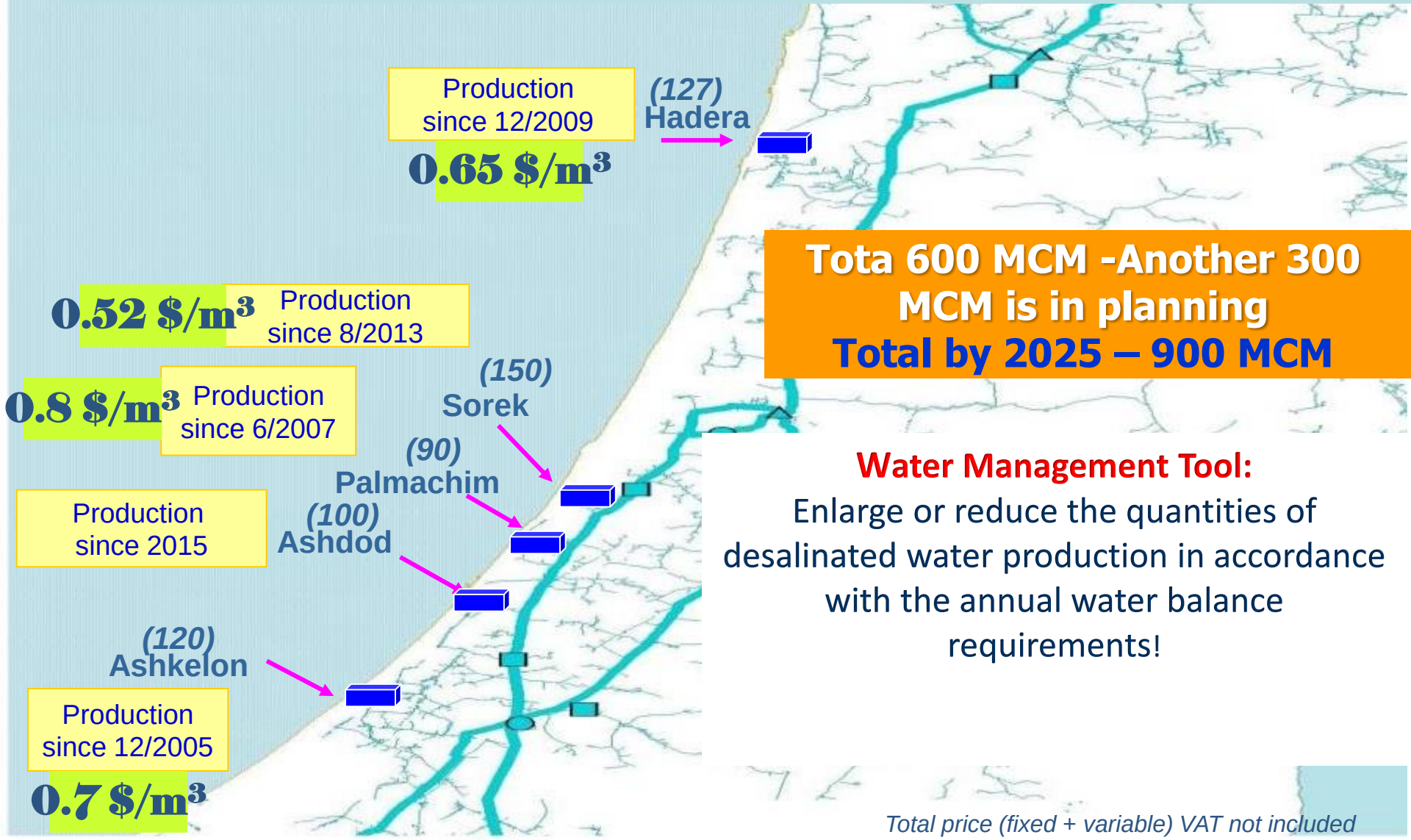
Solutions – access to drinking water

Israel government decision 3866 June 2018

- Development of desalination plants subject to agreed scenarios of climate change
- Development of the national system to reverse the flow directions for supply flexibility
- Connecting remote areas to the national system
- Increasing the scope of reclaimed water in agriculture
- Exhaust the production potential from natural sources
- Encouraging water harvesting and saving in urban areas

Sea Water Desalination

In accordance with the Government decisions since 2001



Tota 600 MCM -Another 300 MCM is in planning

Total by 2025 – 900 MCM

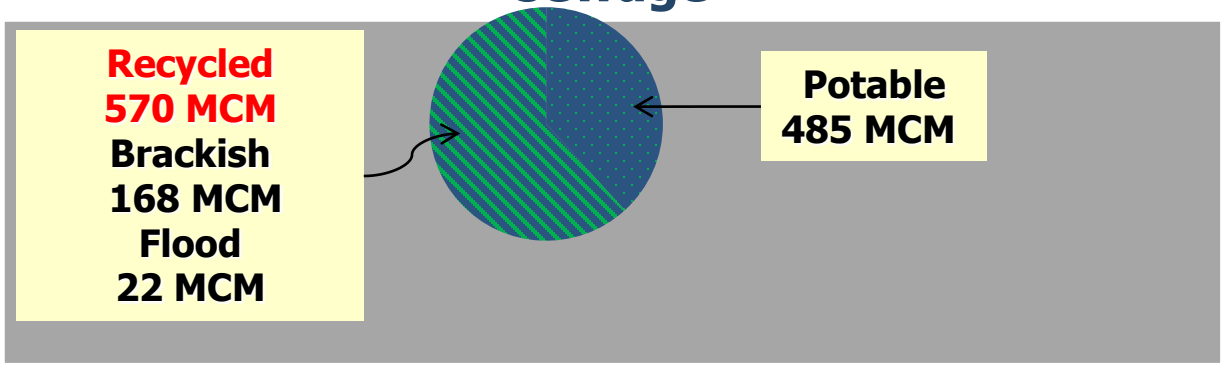
Water Management Tool:

Enlarge or reduce the quantities of desalinated water production in accordance with the annual water balance requirements!

Total price (fixed + variable) VAT not included

Reuse of All Sewage Effluents

With governmental support, sewage infrastructures have been developed and upgraded nationwide, Israel is reclaiming 85% of the sewage



Tertiary treatment – unrestricted irrigation. New stringent standards for effluents quality (37 parameters).

Regulation on industrial sewage

Developing water saving technology in agriculture.

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Solutions – protecting water sources

- Enhancing regulation on environmental protection
- Remediation of contaminated sites and well head treatment
- Establishing monitoring networks to asses water resources status in urban areas
- Executing surveys to assess effluent irrigation on water sources (emerging contaminates)

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Thank you for your attention