

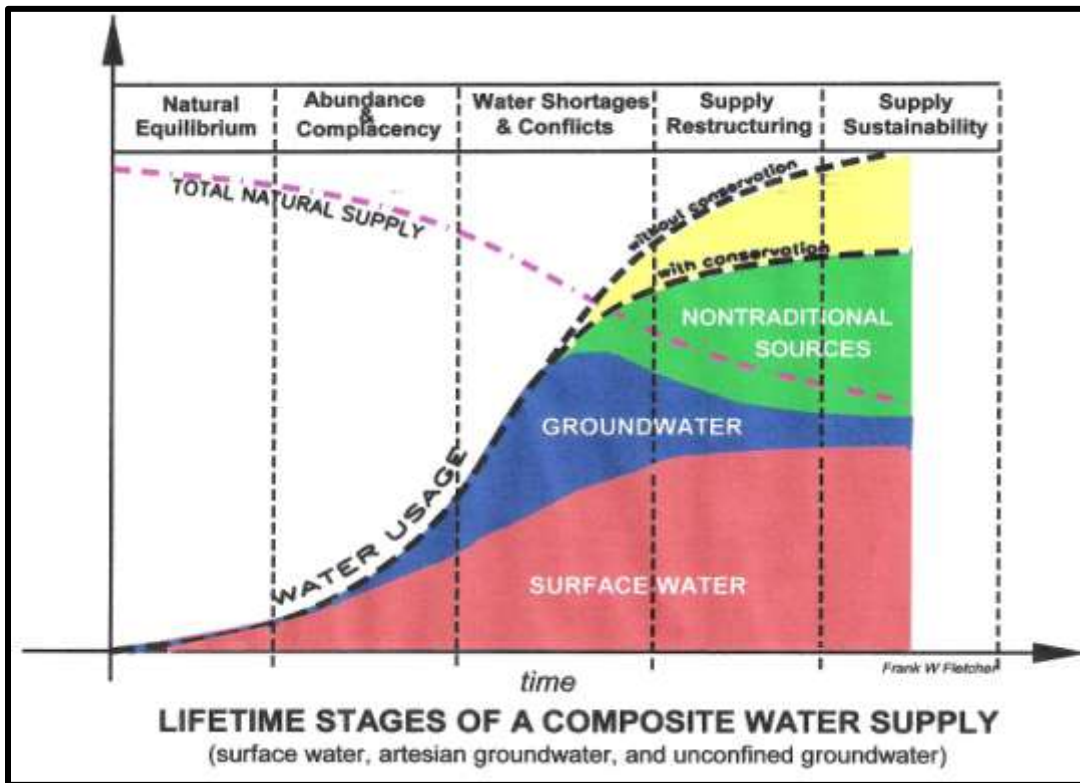
FROM SUPERABUNDANCE TO A SUSTAINABLE WATER SUPPLY

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The demand for freshwater in Virginia has grown steadily for decades, commensurate with the increase in population and economic development. Historically, Virginians have obtained their supply of freshwater from two sources: surface water (streams, lakes, and reservoirs) and groundwater (shallow wells in the surficial aquifer and deep wells in the artesian aquifers). This traditional supply has been both abundant and relatively cheap.

- The historical growth of surface water withdrawals has been **sustained by a long period of dam and reservoir construction**, which has enlarged the total storage capacity of Virginia watersheds.
- The historical growth of groundwater withdrawals has been **sustained by a steady and long term reduction of aquifer storage** — evidenced by the decline of artesian water levels.

In the future, however, this supply is unsustainable. Water demand must be met by means other than simply increasing the storage capacity of surface water and drawing down groundwater reserves. Hydrologic, ecologic and socioeconomic factors will constrain new dam and reservoir construction, diminishing the opportunities for expanding storage capacity of fresh surface water; and falling artesian water levels and shrinking aquifer storage will gradually but steadily reduce groundwater withdrawals. Consequently, the future water supply of Virginia is not likely to look very much like the past supply.



Aggressive water conservation will slow the growth of water demand and reduce the need for a portion of the water withdrawals; but conservation alone will not be enough to compensate for the lack of sufficient sources of fresh surface water or the shrinking supply of groundwater. In the new water supply era, nontraditional sources will have to supplement the two traditional water sources. Desalination, rainwater capture, and water reclamation/reuse will comprise a substantial piece of this diversified and ultimately sustainable supply.

Nonetheless, because of basic environmental, economic, and energy limits, it is difficult to envision Virginia's water supply growing as vigorously in the future as in the past. If the historic shift to a sustainable water supply is to occur with only tolerable struggle, then neither government legislation and regulation nor private enterprise alone will suffice. I believe that the path ahead must lie in an unprecedented partnership between public and private sectors, informed by objective research and citizen participation.