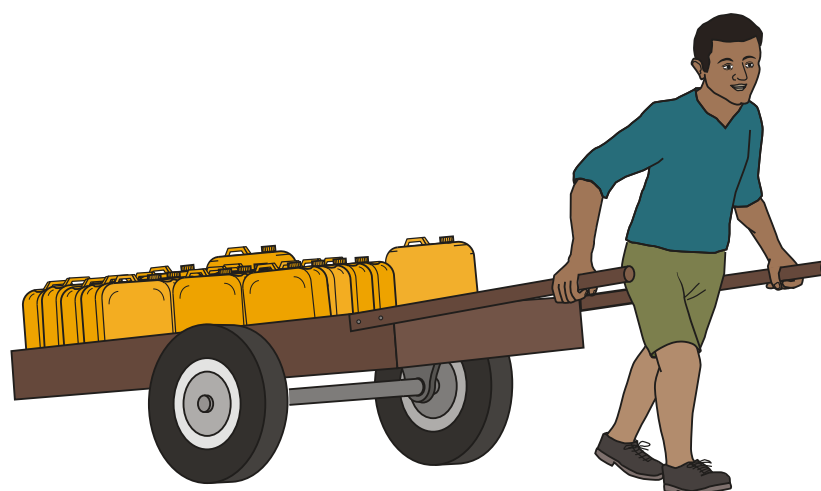


# Water Vendor Cart

<b>Response Phase</b> ★ Acute Response ★★ Stabilisation ★★ Recovery	<b>Application Level</b> ★ Household ★★ Neighbourhood City	<b>Management Level</b> ★★ Household ★★ Shared ★★ Public	<b>Objectives / Key Features</b> Commercial resale of water
<b>Local Availability</b> ★★★ High	<b>Technical Complexity</b> ★ Low	<b>Maturity Level</b> ★★★ High	



Water Vendors resell and distribute utility water or water from other sources. They fill a gap in water provision when there is no functional household distribution network or for places not covered by humanitarian supplies during (urban) emergencies. In cities, they can provide water to a significant proportion of the population and can play an important role in securing supplies. Where this service exists, it will most likely continue to function during an emergency.

Water Vendors can be grouped into three main categories: (1) Wholesale Vendors who obtain water from a source (or produce potable water) and sell it to distributing Vendors, (2) distributing Vendors who obtain water from a wholesale Vendor or other water source and sell it direct to consumers door-to-door, and (3) those that sell water direct to consumers who come to purchase water (e.g. Water Kiosk, D.4). Distributing Vendors exist at various scales and in various forms, from individuals on bicycles up to large water tankers (see D.3).

**Design Considerations:** Where water points are more than 500 metres away from households, water collection takes increasing amounts of time while less water is collected,

so Water Vendors can provide a valuable service. In urban areas, distributing Water Vendors can effectively act as an extension of the public supply distribution network, taking water to outlying areas not served by the network. In rural areas, the greater distance to water sources often drives demand for Water Vendors. Distributing Vendors can fetch water from a variety of sources including private or municipal taps, wells, water kiosks or public water vending points, which they then sell on to users at a higher price. Users tend to pay this price because of unreliable piped water supplies, perceptions of quality and taste, affordability (in terms of cash flow) and the added convenience of having water delivered. Water Vendors can operate either informally (e.g. non-licensed individuals using small-scale means of transport, such as jerrycans carried on bicycles or push carts or purpose-made oil drums converted to water tanks to be pulled by a donkey), or through a more formal arrangement (e.g. licensed water trucks managed by an enterprise). Water vending is not only limited to the resale of water. In urban areas, private entrepreneurs are emerging that invest in their own distribution or treatment infrastructure to fill the infrastructure gap. This includes direct Vendors that invest in small private piped networks that connect to households not served by the main utility,

as well as those who set up water treatment and bottling services (see D.4).

Where they exist, Water Vendors perform an essential role in water distribution. If present, an emergency response strategy should work with Vendors to restore livelihoods and increase the speed of water provision to as many people as possible. The success of this may depend on the legal framework for water vending (in some cases it is not legally recognised). Regardless, key aspects in an emergency will be ensuring water quality through chlorination at the source, monitoring chlorine levels at household level, as well as getting water sources back online as quickly as possible.

**Materials:** Materials include the water container(s) and the means of transport (i.e. the vehicle for carrying the containers, which may require fuel).

**Applicability:** Water Vendors will most likely continue to function after an emergency, although how well will depend on how much they have been affected by the emergency, as well as whether the water source has been damaged. Water vending of various types is more likely following an emergency, since the number of people without a piped water connection may increase due to migration into informal urban settlements and a possible loss of functionality of existing water networks during the emergency due to under-investment in infrastructure. After earthquakes or landslides, piped water connections can be severely damaged, and in these cases Water Vendors can be very useful in areas where they do not normally operate.

**Operation and Maintenance:** In an emergency, the water supply should normally have residual chlorine, which will reduce any recontamination. The water should be continuously monitored at the household level via random checks. Occasional cleaning of Water Vendor containers is particularly recommended during diarrhoea outbreaks to ensure that containers are not a source of contamination (see D.1). The mode of transportation will require regular maintenance, which is up to the Vendor to address. In an emergency, water might be in short supply and Vendors may draw their water from polluted sources and charge inflated prices. Providers must therefore be independently managed to ensure they are delivering a safe produce at a fair price.

**Health and Safety:** The quality of water supplied by Vendors can vary and depends on the water source and its surroundings, the state of the transporting containers, the storage time, water handling practices and residual chlorine concentration (where chlorine is added). Water that is collected from an unsafe water source (e.g. river) will clearly be a health risk for users, but even water from a safe water source can be recontaminated easily during transfer to and from the containers, especially since this transfer can happen multiple times. Water that is collected

at official water vending points may have better quality (since these are usually connected to the water distribution network), but recontamination can still be an issue here, especially if the water storage time is long and the temperature is high or if tankers are used for other purposes than water transport. Since most of the services provided by individuals are informal, quality control is often not done. Therefore, in an emergency where Water Vendors are operational, it is essential to ensure water quality through monitoring the water sources that Vendors use as well as by ensuring adequate chlorination dosing and monitoring chlorine levels (see T.6). This should be the role of the local authorities, and one method of doing this in an emergency can be chlorination at the point of collection which can be effective in the short term (i.e. into the tank or jerry-can when it is being filled). Water vending itself can also be physically demanding work, with distributing Vendors often complaining of pains in the chest, back and joints.

**Costs:** Water sold by Water Vendors is more expensive per volume compared to that supplied via network-to-house connections because of the work that is done by middle-men to deliver the water. The cost of water varies significantly by context, but many studies indicate the median mark-up of Vendor water is about eight to ten times that of water from piped connections. This does not mean that distributing Vendors are rich; they are typically poor people themselves, supplying to other low-income people, and their earnings are generally low. In many countries, Water Vendors are just workers passing earnings on to employers.

**Social and Environmental Considerations:** Water vending is usually well accepted by people, especially in areas where these services existed before the emergency or where existing water services are insufficient or ineffective. If engine-powered water transportation and pumping is used, maintenance should be assured to limit pollution and health risks when the equipment is used in densely populated areas.

#### Strengths and Weaknesses:

- ⊕ Delivers water to the door, saving time for other activities
- ⊕ Is financially sustainable, and water is given a value
- ⊕ Can be purchased in small, household-sized quantities at flexible prices
- ⊕ Can extend public utilities and can provide a solution where public utilities fail
- ⊖ Is only available for those who can afford it
- ⊖ Has higher costs compared to water obtained through household piped connection
- ⊖ Lacks control over water quality and price
- ⊖ Operates outside of legal structures

→ **References and further reading material for this technology can be found on page 219**