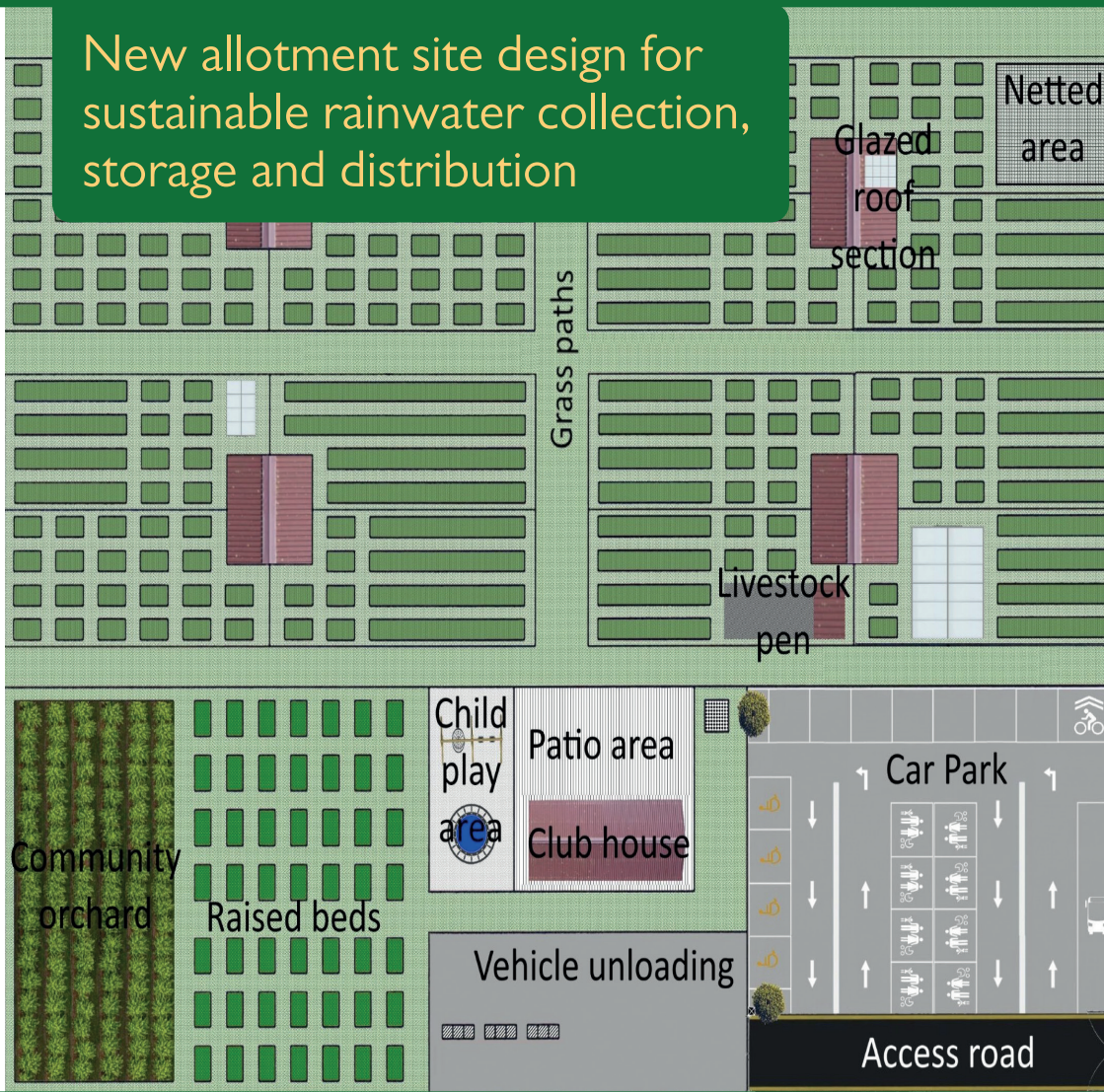




New allotment site design for sustainable rainwater collection, storage and distribution



The DRY project has worked with allotment holders, the National Allotment Society and commercial growers to bring together the knowledge and advice in this guide



There are many types of allotment site and community garden. The traditional allotment site consists of rectangular plots (each of 250 square metres), often laid out in more or less straight rows.

In the UK, summer rainfall is likely to decrease and temperature to increase.

These changes are likely to increase demand for water on allotments. Growers can adapt to these changes by using growing practices that increase water use efficiency, increasing soil moisture capacity and by collecting and storing rainwater.

With this development in mind, new allotment sites should have water at the heart of their design. On most allotment sites, rainwater

collection is at the discretion of the plot holder, but there is a limit to the amount of water that an individual can collect and store.

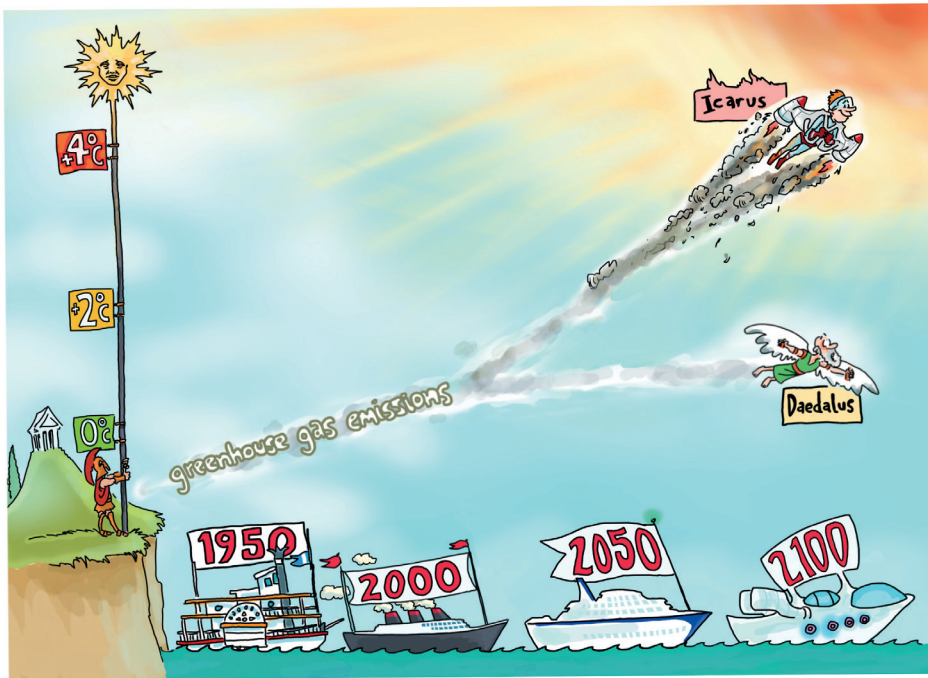
It is more efficient to collect and store water on a larger scale; either as a centralised site water facility, or using a semi-distributed system where neighbouring plot holders share water.



Mains water or rainwater?

Some allotment sites have water supplied directly from the mains while others rely on collected rainwater. Even when mains water is included in the rent the number of water troughs or taps are usually limited. Rainwater is free. The NAS has, for many years, encouraged plot holders to

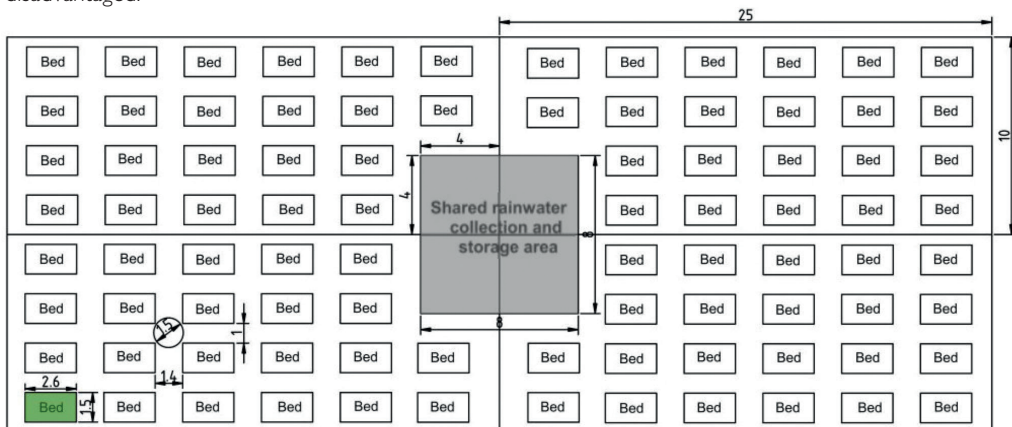
(predominantly) use rainwater; and many growers consider that rainwater is better for plants than tap water. Rainwater can be harvested from artificial structures (e.g. sheds, greenhouses or polytunnels) or from the landscape (e.g. swales, terraces or French drains).



GLOBAL AVERAGE SURFACE TEMPERATURE AGAINST TIME

A semi-distributed rainwater collection and storage system, would increase the amount of water that could be stored and minimise the distance between source of water and site of use. All plot holders will be close to a source of water so that people who cannot easily carry watering cans will not be disadvantaged.

At the same time, it would encourage plot holders to cooperate, and this would promote a sense of responsibility and ownership.



What is the optimum structure for rainwater collection and storage?

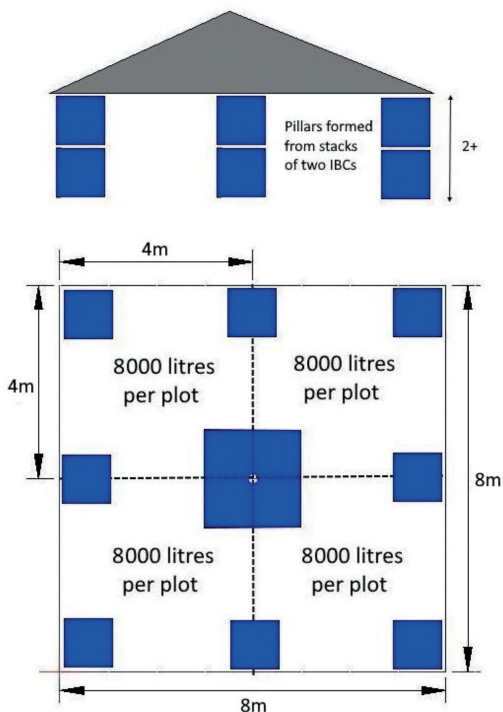
An array of intermediate bulk containers (IBCs) can be the most practical, and economical, storage option. They can form a water collection structure.

Grouping four plots together provides a degree of 'averaging' in consumption (e.g. different crops on each plot). Grouping increases the mechanical rigidity of the structure, this may be of particular importance on exposed sites.

In 2019, the National Allotment Society conducted a survey of water use on allotments. This survey found that estimates of annual water use ranged from 0.48 to 176 litres per square metre (with an average of 21 litres per square metre).

What to do with excess water?

Excess water from rainwater harvesting systems during periods of high rainfall can cause problems of waterlogging on adjoining plots. An area that is lower than other parts of the site, is the ideal place to create a small pond or bog garden that can take the excess water and provide a valuable haven for frogs and toads that eat allotment pests.



Paths

Few allotment sites are completely flat or uniformly well-drained. Permanent paths should follow the contours of the site, and if practical, be made of a permeable material. This will reduce runoff during periods of intense rainfall and encourage water infiltration since the compacted area of soil under the path will act as a barrier to through-flow in the surface layers of the soil.

For additional information see "Allotments in the Future: Building Resilience to Climate Change through Improved Site Design and Efficient Water Practices" via: <https://www.mdpi.com/2073-4441/13/11/1457>