CLAIMS

1. A plant support structure for accommodating plants, the plant support structure including:

a framework including a plurality of primary elements interconnected to each other in a vertically extending arrangement, the plurality of interconnected primary elements forming a plurality of geometric blocks and vertically extending channels;

wherein the vertically extending channels are configured to receive therein a porous material for carrying water from a top end of the plant support structure down the vertically extending channels for irrigating plants in the vertically extending channels,

each geometric block of the plurality of geometric blocks includes a central void, around which one or more of the vertically extending channels traverse at a periphery of the geometric block, and

wherein each vertically extending channel:

is formed by a structurally interconnected front layer and back layer of the primary elements;

is open on two sides with each side opening into one or more of the central voids;

continuously descends from the top end to a bottom end of the plant support structure; and

forms a non-linear path along its length,

wherein one or more of the central voids define an opening extending horizontally through the framework.

2. The plant support structure of claim 1, wherein at least one of the plurality of interconnected primary elements has a micro-awning for providing shading to plants within the vertically extending channels and/or to a building associated with the plant support structure.

3. The plant support structure of claim 1 or 2, wherein the plurality of interconnected primary elements in the framework form an interlaced hexagonal geometry.

4. The plant support structure of any one of the preceding claims, wherein the front layer and the back layer are horizontally spaced apart from each other, and the vertically extending channels are formed between the front layer and the back layer.

5. The plant support structure of any one of the preceding claims, wherein the vertically extending channels do not include sections that extend substantially horizontally.

6. The plant support structure of any one of the preceding claims, further comprising a porous material disposed in at least one vertically extending channel of the vertically extending channels, wherein the porous material is configured to accommodate and integrate roots of the plants.

7. The plant support structure of claim 6, wherein the porous material is continuous from the top to the bottom of the plant support structure.

8. The plant support structure of claim 7, wherein the porous material is a continuous body.

9. The plant support structure of claim 7, wherein the porous material comprises multiple pieces.

10. The plant support structure of any one of claims 6 to 9, wherein the porous material is a wicking material, porous bag, or lattice comprising a medium configured to support plant growth.

11. A system for accommodating and maintaining plants, including:

the plant support structure of any one of claims 1 to 10;

a porous material held within the vertically extending channels, the porous material for carrying water from a top end of the plant support structure down the vertically extending channels for irrigating plants in the vertically extending channels; and

an irrigation system for providing water into a top part of the vertically extending channels of the plant support structure.

12. The system of claim 11, wherein the system further comprises a water treatment pond located near the bottom end of the plant support structure, wherein the water treatment pond is configured to receive and purify water resulting from irrigation overflow through the vertically extending channels of the plant support structure.

13. The system of claim 12, wherein the system further comprises a water storage tank for storing either the water resulting from irrigation overflow through the vertically extending channels of the plant support structure or the purified water received from the water treatment pond.

14. The system of claim 13, wherein the system further comprises a cistern located at a height close or above the height of the plant support structure, wherein the cistern receives water from the water storage tank and provides the water to the irrigation system.

15. The system of claim 14, wherein the system further comprises a power source and a pump for pumping water from the water storage tank to the cistern.

16. The system of claim 15, wherein the pump is powered by solar energy to pump the water to the cistern.

17. A plant support structure for accommodating plants, the plant support structure including:

a framework including at least two structurally interconnected layers of a plurality of geometric blocks, the at least two structurally interconnected layers being horizontally spaced apart to form a space between the geometric blocks;

a porous material secured within the space between the geometric blocks whereby the geometric blocks and porous material form vertically extending channels for carrying water down the framework for irrigating plants in the vertically extending channels,

wherein each geometric block of the plurality of geometric blocks includes a central void, around which one or more of the vertically extending channels traverse at a periphery of the geometric block, and

wherein each vertically extending channel:

is formed between the at least two structurally interconnected layers;

is open on two sides with each side opening into one or more of the central voids;

continuously descends from a top to a bottom of the plant support structure; and

forms a non-linear path along its length,

wherein one or more of the central voids define an opening extending horizontally through the at least two structurally interconnected layers of the plurality of geometric blocks.

18. The plant support structure of claim 17, wherein the framework is formed from fibre reinforced concrete.

19. The plant support structure of claim 17 or 18, wherein the porous material is a wicking material.

20. The plant support structure of any of claims 17 to 19, wherein the geometric blocks are hexagonal shaped, oriented with a vertex as an uppermost part of each block.

21. The plant support structure of claim 20, wherein the geometric blocks include one or more elongated hexagonal shaped blocks, providing increased separation between parts of the plant support structure at the location of the elongated blocks relative to non-elongated hexagonal shaped blocks.

22. The plant support structure of any one of claims 17 to 21, affixed to a structure so that the at least two structurally interconnected layers are spaced apart from the structure.

23. The plant support structure of claim 22, further including one more platforms between an innermost layer of the at least two structurally interconnected layers and the structure, the platforms configured to accommodate thereon a person.

24. The plant support structure of any one of claims 1 to 10 and 17 to 23, wherein each geometric block has a continuous line of thickened material extending down both sides of its periphery, relative to material to one or both sides of the line of thickened material.