ARE THERE TOO MANY PEOPLE IN THE WORLD?

The answer to that question depends on what you mean by too many and how much space you think each of us needs to live comfortably. Obviously, any response is going to be highly subjective.

Still, it would be interesting to know just how much space all of the world's people actually do take up and how much space we would need to be moderately comfortable. That said, consider the following calculations.

Suppose we created a pod or container that would allow one regular size adult or just about any child or baby to stand up inside. A pod 1 foot x 2 feet x 6 feet would do the trick. That size pod would be adequate for the vast majority of people. Only those who are very tall or very obese would not fit into a pod that size. Note also that this pod is exactly 12 cubic feet.

Now, there are just about 7.8 billion people in the world (as of March, 2020). Let's give each one of them a pod to stand in for a moment, and let's also assume that since babies and small children will only take up a fraction of their allotted 12 cubic feet that those too large to fit into their pods can borrow unused space from the babies' pods. Finally, let's now place all the pods with people in them next to each other in such a way that there is no unused space between the pods either above or below as well as side by side.

How much space will this take up? Let's do the math and see.

7.8 billion x 12 = 93.6 billion (93,600,000,000) cubic feet.

Now the formula for the volume for a sphere is $v = 4/3\pi r^3$ where v stands for volume and r stands for radius. If we put 93.6 billion as the volume and solve for r, our radius for this sphere comes out to 2,817 feet. Multiply that by 2 for the diameter and you get 5,634 feet or just a bit more than a mile. In other words, you could put all of the people in the world into 12 cubic foot pods, and these pods would then fit into a sphere just a bit more than a mile across and a mile high (remember that a mile is 5,280 feet).

Here's another way to look at this. Suppose we put all of the people into their pods and form a cube with the pods (which is more space efficient than a sphere). Now we just need to take the cubed root of 93.6 billion to find the length of the cube's sides and height. This number is 4,540 feet. So, our cube would be less than a mile (.86 of a mile to be exact) side to side and top to bottom. The rest of the world in both cases, whether we are talking about either a sphere or a cube filled with people pods, would be empty.

Now, obviously, we couldn't live in these pods, but how much space would we use up if we were all given a bit of room in which to move around and get comfortable? Suppose we gave everyone in the world 1200 square feet of space for them to occupy – that's a space 30 x 40 feet – enough for a living room, bedroom, kitchen and bath. Now let's also suppose that we stack these spaces up 10 high so that we end up with 10 story apartment buildings.

How much space would this take up? Again, let's do the math and see.

7.8 billion divided by 10 (because we have 10 story buildings) = 780 million apartment buildings. Each of these buildings would take up 1200 square feet of land.* So, we have 780 million x 1200 which equals 936,000,000,000 square feet.

Now there are 43,560 square feet in an acre of land. So, let's see how many acres we need for these 780 million ten-story buildings. 936,000,000,000 divided by 43,560 equals 21,487,603 acres. To get a little better picture on how much land this is remember that there are 640 acres in a square mile. So, let's see how many square miles we are talking about. 21,487,603 divided by 640 equals 33,574 square miles which is a little smaller than the State of Indiana (which is 35,870 square miles). While this plan to house everyone in the entire world would use up the entire state of Indiana, remember that the rest of the world would be entirely empty.

Now, for the sake of argument, let's change the parameters a bit. Our calculations are based upon every man, woman and child having 1200 square feet of space. However, suppose we put two people in that space (a husband and wife for example). Now the entire human race is going to take up a total of 16,787 square miles which a bit smaller than the States of New Hampshire and Vermont combined. Finally, suppose we went from 10 story buildings to 20 story buildings. Now we are all going to take up just 8,394 square miles which is a land area just a bit larger than the State of Massachusetts. Note again, that the rest of the world would be entirely empty. There would be no people in Africa, Asia, Europe, Australia, South America, Oceana nor in the rest of North America. There would only be people in Massachusetts.

So, are there too many people? The answer to that question depends on what you mean by too many and how much space you think each of us needs to live comfortably.

* Yes, I know I am leaving out room for streets and churches and stores and parks and power plants, but my point is simply to calculate how much room all the world's people would need for everyone to have a comfortable living space all their own.