Sandbag domes take 2-3 days to construct, and if not constructed correctly serve no purpose. Are sandbags really the most efficient way to stop a flood? Here in a country so liable to flooding, should we not have a cheaper, more practical and more efficient alternative?

Aim: The aim of our project is to try and provide exactly that. We are going to provide an efficient way to stop and prevent the damage caused by flooding to households and businesses. By means of tests and mathematical equations, we plan to find a better option to stop or at least greatly reduce flooding. Our tests will cover synthetic as well as natural material, and as a control and comparison we will also test sand. After these tests we hope to come up with a prototype alternative that is not only more efficient but both practical in its shape and weight.

Alternatives: The two materials we suggest to use are: peat moss as our natural material, and memory foam as our synthetic alternative. As our project and research progresses these may change as we hope to come up with the best materials that are both easy to come by and, for the purpose of our experiment, cost effective.

Our tests will include:

- Soaking each material of the same volume in the same amount of water for the same length of time, checking each materials absorbency after each minute. By doing this a number of times we will have an accurate idea of which material retains the most water and can plot this on a trend graph.

- As another part of the experiment we will see how long it takes the materials to dry, and their state when dry. This will help us determine how long and how difficult it will be to remove the bags when the flooding has stopped as this is one of the major problems with sandbags. It will also tell us whether the material can be used again as with sandbags they cannot.

- Another big part of our test will be to find how our materials can withstand the force of the water being pushed against it. This can be found by such experiments as using a hose on different strengths.

- A particular equation used for the required amount of sand bags can be drawn up. This will greatly help us when determining how much of each product would be needed in a disaster:

- N=(3 x H + 9 x H x H)/2
- H= required dyke height in feet. For a 35 pound bag of sand each foot requires 1 bag in width; 3 in height and for every 2.5 feet in width 3 bags are required.

Results and Conclusions: Through our experiments we will show if our materials are more efficient and effective than sandbags in a flooding situation.