

FLOOD PLAIN FOLLIES

Anyone who cares about the sustainability of future housing plans for this country will have heard alarm bells ring when Jonathon Porritt, writing in *The Guardian* recently, said

The UK's population is set to grow by around another 10 million people over the next 25 years. A significant percentage of those millions will end up housed in the South East, further exacerbating already chronic overheating effects – including the need to build millions of new homes, many of which (despite the strangled complaints of the poor old Environment Agency) will continue to be built on flood plains.¹

Yes they will, despite the now vividly-demonstrated folly of such developments. So why on earth do planners go on allowing, builders go on building, and house-buyers go on buying incredibly expensive homes in such demonstrably stupid places?

There are some fairly obvious answers. Builders – very often the “chain store” mega-firms like Barratt, Wimpey and their offshoots – like large, cheap, flat plots of land where houses, roads and infrastructure can be laid out as if on a sheet of paper. In fact this two-dimensional approach to mass house-building leaves one wondering if the designers of such “estates” actually visit the particular site, so identikit are they. To build on sloping ground requires a bit of thought, and skill, and these come expensive in a de-skilled, computer-aided head-office studio. On this mostly lumpy, bumpy island, flat land is nearly always flood-plain of some sort.

There are plenty of rules in the planning system about all this, in the National Planning Policy Framework (NPPF) and its associated Technical Guidance. Land is categorised into Flood Zones according to the statistical chances of it flooding in a given year, and housebuilding (in theory) is directed accordingly. One chance in 1000 is zone 1, where new houses are fine. Between 1 in 1000 and 1 in 100 is zone 2: new houses should be built here only if they cannot be put in zone 1. Above 1 in 100 is zone 3, where housing should be built only in exceptional circumstances, after a full risk assessment, and when there are no zone 1 or 2 sites available. Zone 3 includes “functional floodplain”, areas which are *expected* to be underwater in times of flood. Whatever gets built, planners are supposed to “seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development”.

Statistical chances of flooding are of course pretty difficult to calculate, especially given an unpredictably changing climate. Still, the basic framework here is sensible enough: but as ever

the devil is in the interpretation. Words like ‘exceptional’ and ‘available’ mean different things to different people, and these differences are expertly exploited by housebuilders’ expensive lawyers and planning consultants. Given the massive costs to other Government agencies when floods inevitably occur, one might see this as part of the general collusion between the state and those who keep the illusion of “the economy” moving. According to a recent parliamentary briefing note,

In 2012 the construction industry in the UK contributed £83.0 billion in economic output, 6% of the total. Two million jobs or 7% of the UK total were in the construction industry in June 2013.⁴

So why rock the building boat, or worry about lesser problems arriving downstream? Houses on floodplains get built at minimum bother and maximum profit to the builders, and if people are daft enough to sign up to a 25-year mortgage for a “home” which will prove un-re-saleable, hence worthless in monetary terms, well, that’s their look out.

Why do people do that? Rationally, they often have little choice. Our towns and cities are mostly built on rivers, because a thousand years ago you could bring in goods by boat, the bridge was there, or just because large populations need lots of water. The towns provide the employment, the facilities, and as the population grows they expand into less and less suitable terrain. The newer the house, the sillier its situation, generally speaking.

Take York, on the Ouse, which floods regularly, or Carlisle on the Eden,

which floods irregularly, and so even more catastrophically. They are where they are because that’s where they’ve always been. You cannot transport such a city to a more “sensible” place in the uplands – you have to find ways to deal with the river’s temperamental habits. As people used to do, presumably, given that the ancient quayside pubs and cottages are still there, and not abandoned. There are strategies. No ground-floor carpets is a good start.

So is there a change in the mindset of the “new wave” of flood-plain dwellers? Is it connected with a welfare-state outlook whereby the parental Government should take charge, and responsibility? During the Somerset Levels (rural) and Thames Valley (suburban) floods of last winter, there was a good deal of whingeing recorded among the flooded-out, some of whom seemed to expect the Army to come and move their furniture upstairs for them. Or even that the Prime Minister should switch off the rain. News footage showed all manner of costly gizmos bobbing about in living-rooms, such as two inches of



Is it a frog? Is it a croc? No it's a Mercedes C350 “Blue Efficiency”, abandoned near Thorney, Somerset, in February 2014. This photo was taken from up in a tree. Below: an Indian monsoon habitué rescues the bit that matters: his livelihood.



plasma-screen TV poking up above the flood, while the Army were paraded strategically past the TV cameras in impressive trucks, no doubt wondering what they were doing there.

These events displayed a startling level of personal and public incompetence to take obvious practical steps. This level of mental, as well as physical, unpreparedness for a predictable seasonal event is quite disturbing. When people buy houses, the most commitment-heavy purchase of a lifetime, do they not consider all eventualities? Is it that the fabled “housing shortage” pushes people into unwise choices? As far as new flood-plain housing estates go, the builders must shoulder much blame for such inappropriate design. Houses on stilts, or above a garage, would make sense - they routinely do this in Holland³, so why can't we? But high-volume builders carry none of the can in practice - by the time the insurance claims are being made, they're long gone. Planners could and should insist on “flood resilient” design, but rarely do so.

A 2003 paper entitled *Build on Floodplains - Properly*, by Ilan Kelman, of UCL's Institute of Risk and Disaster Reduction is worth quoting at length:

When flood disasters occur, a traditional reaction is to suggest the straightforward, obvious, simple solution of not building on floodplains. In principle, it is the easiest and clearest solution and it is the solution which many locations have miserably failed to adopt so far. In practice, the following issues arise:

1. We do not have an exact understanding of the current location of floodplains. Floodplain maps in many countries are reasonably good, but are they good enough for making long-term development decisions?
2. We do not have an exact understanding of the future locations of floodplains. Much can change during the lifetime of a property ... Choosing which floodplains specifically to avoid is challenging.

He goes on to say:

All locations have hazards. For example, avoiding low ground due to flooding might increase vulnerability to wind and thus increase the damage and deaths resulting from wind storms. People need to live somewhere. Considering the UK, by the time we have eliminated all floodplains, wind hazard areas, earthquake vulnerable areas, locations with landslide potential, national parks, areas of outstanding natural beauty, sites of special scientific interest, land not for sale (eg inalienable National Trust properties and Ministry of Defence active lands), land around airports, sites with geological interest or resources, wildlife reserves, land near industrial and waste management facilities, areas with high levels of radon, and all other areas of concern, we might be hard-pressed to find enough places in the country to build sustainable, healthy, accessible communities.

Living in floodplains has many advantages. Many people enjoy the view of, or proximity to, rivers or the ocean. The importance of feeling comfortable in one's location with respect to building sustainable, healthy communities should not be underestimated.

“Feeling comfortable” in this psychological sense is a factor of the security that comes from familiarity and preparedness. In Britain, it seems, no-one is ever prepared for a flood in *their* back yard, not *this* winter. But a third of the houses we'll be living in come 2050 have not yet been built⁶ so herein lies an opportunity to give up the comforting familiarity of the standard idea of a house, and do something a bit more brave.

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A Home that Floats ?



House above water ... a modern recreation of the crannog, an ancient Scottish dwelling-on-stilts, in Loch Tay, Perthshire.



How the Dutch do it ... “Amphibious” houses at Maasbommel, on the River Meuse, which rise on the flood, up to 5.5 metres if necessary, float and then subside - no effort required.



Belt and braces - stilts and a raft - floating homes like the one above have become the architect's favourite fantasy plaything, as new flotation devices are invented almost daily. Far too many of these involve polystyrene buoyancy aids; others anchor the house within steel pillars. and some hark back to the traditional house-boat. For those content with an ultra-low impact solution to living in a flood-prone world, the dwelling below may offer some inspiration.



1. <http://www.theguardian.com/environment/blog/2014/mar/07/environment-groups-problem-population>
2. Guardian 12/2/14 “All you need to know about floods”
3. <http://www.theguardian.com/environment/2014/feb/16/flooding-netherlands>
4. www.parliament.uk/briefing-papers/sn01432.pdf - author Chris Rhodes
5. <http://www.buoyantfoundation.org>
6. New Scientist 22.2.2014 “Live with it or Move Out” Catherine Brahic