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Urban Development

A book published in England in 1974 entitled, *Geomorphology In Environmental Management*, has in it a paragraph that is hauntingly familiar to those acquainted with contentious Russian River issues:

"When the construction of houses and roads has taken place there is a decrease in the natural infiltration, ground water level may be lowered, and artificial drainage lines are introduced. Local interference with minor streams may cause these to flood or to undermine their banks. Streams may be diverted for public water needs, decreasing the runoff down the old stream course. Untreated waste, including sewage, may be discharged into streams, causing pollution which in turn may be lethal for aquatic life and detrimental to the use of water downstream either as a source of supply or for recreational purposes. Streets and gutters act as storm drains, often creating higher flood peaks in local streams. As towns continue to grow, the demands of industry upon the water supply increase, and pollutants may be discharged into the natural drainage. Water demands may necessitate the building of dams upstream, or cause water to be brought in from adjacent basins."

Now that the Flood of 1995 has receded, people in

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Sonoma County are beginning to question whether development has caused higher flood peaks. Even officials as far away as the Netherlands are asking the same question as they experienced the worst flooding for the century almost immediately following California's flood.

According to a recent Press Democrat article, "...there are those who now believe it [flooding in the Netherlands] is as much the result of over building and over cultivating as of excessive snow and rain." The Environmental Minister for the German State of Rhineland Palatinate, even went so far as to acknowledge: "This high water is partially man-made...We've been raping nature for 40 years, and we've got to change that."

Back here in Sonoma County Ernie Carpenter was reported as saying in the Independent "...all the experts say that development doesn't cause that much change in flooding." Whereas Tom Anderson, Sonoma State University geology instructor, claims, "When you put in fairly successful flood-control projects but still get big floods, then probably development has added to the amount of water that goes into the river system."

The chart on page 11 indicates that flooding has increased since 1950, even after Warm Springs Dam and Coyote Dam were constructed. It seems short sighted to discount development as a contributing factor to flooding. How much is the question.

180 acres of land and 1" an hour of rain equals 180 acre inches which equals 15 acre feet of water, which then translates to approximately 5 million gallons of water. If the land were undeveloped, this water would be filtered slowly through its normal process minimizing the threat of flooding. However, development on that same piece of land would force a majority of that 5 million gallons to drain over pavement into storm drains, exacerbating a waterway's ability to accommodate that much water so rapidly. This may not be big in the overall picture. However, if you consider 180 acres here, 87 there, etc. etc, it all adds up.

The City of Santa Rosa is considering annexing hundreds of acres in the southwest area of the Santa Rosa plains. The cumulative impact of development on these acres as well as other acres in and surrounding flood plains can't help but increase the chances of flooding. Perhaps it is time to include an analysis of cumulative flood potential of all development within our floodplains to determine how much development increases flooding, and lay the question to rest.

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In the meantime, it is well to remember:

1. Natural systems are in constant flux. Dramatic variations in natural cycles, like severe flooding will inevitably occur. Often this is of benefit to the environment.

2. Human activities have dramatically altered the river's natural condition which exacerbates flooding. We need to evaluate man's past mistakes and identify steps to take in order to minimize our interference to this natural cycle and allow it to perform its normal function.

3. The river is an important resource that, if adequately protected and restored to maintain an honest level of biological integrity, is capable of providing both water and recreational benefits into the foreseeable future. Restoration of natural vegetation and allowing the river to meander where appropriate are solid first steps towards such an end.

4. All of us in Sonoma County have a responsibility and stake in assuring the long-term health of the Russian River. From the agencies which oversee water withdrawal, wastewater discharge, and watershed protection, to the committed environmental activist fighting for a more natural river, to the typical water customer who simply expects ample delivery of clean and safe water to their home; we all stand to gain from a river which functions in as natural and biologically sound manner as possible.

Even if that means the Russian River flooding from time to time.

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