

THE MIGHTY UMZIMVUBU

Every time it rains heavily on the Wild Coast, a sinister brown stain mars the blue of the Indian Ocean off Port St Johns - the mighty Umzimvubu River is in spate, carrying tons of precious top soil in the form of silt from the degraded inland catchment. John Costello, a lifelong Wild Coast resident, watches helplessly from the Outspan Inn, near the river mouth. These are his observations and pictures. He says "The fertility of the silt can be gauged by the magnificent lawns at Cremorne holiday resort, where an artificial flood plain traps the silt which otherwise is carried out to sea as the river rushes between its steep banks".



On the 21st and 22ⁿ April more than 200mm of rain fell in the Umzimvubu catchment area, not an unusual amount for this area, but enough to start the river flooding and substantially increasing the volume of silt and sediment borne by this more than 100 meter wide river on its passage to the sea, and flowing as it did at a speed measured at more than 35kph, it scoured the river establishing an average depth of 5 meters. (A speed of 35kmh equates to 9.73 meters a second)



A one meter cross section of the river, 100 meters wide, averaging 5 meters in depth, equates with 500 cubic meters of water, and at a speed of, let's call it 10 meters per second, this equates with 5000 cubic meters of water flowing past a fixed point every second



Now we know from having sampled flood water over the years, that it is safe to estimate that the river is carrying an average of 6-7% load of silt, mud, clay and sediment in suspension, this increasing to in excess of 10% as the water speed increases and larger and larger particles of sand are borne along by the racing water. The image below shows the volume of sediment deposited on the banks

during the period of low to high and back to low again, building up a layer of more than 150mm in depth.



At a 10% suspension rate, and in reality it is even higher than this, the following volume of valuable top soil is carried past a fixed point in the following quantities :-
(To make it easier to visualise, I have equated these volumes to the number of articulated dump trucks needed to handle the respective volumes. These trucks, as

found working on road construction sites, load an average of 10 cubic meters of soil at a time)

500 cubic meters of soil every second, equates with 50 tipper truck loads

30 000 cubic meters of soil every minute, equates with 3000 tripper truck loads

1 800 000 cubic meters of soil every hour , equates with 180 000 tipper truck loads

43 200 000 cubic meters of soil every 24 hours, equates with 4 320 000 tipper truck loads



At least 20cm of mud deposited at the topmost section of Cremorne, this in a quiet eddy some 150meters away from the actual river itself



This image shows the depth of sand deposited on the lawn at Cremorne some 80 meters away from the river itself, the blades of grass and the leaves serve as a scale to indicate the actual depth of the deposit

“Can it be that this is similar to the Nile flooding to restore the fertility of the alluvial plains with silt which of course sustained ancient Egyptian civilizations for thousands of years, before bright modern engineers destroyed that process by building dams? Makes me wonder if Umzimvubu flooding doesn't somehow play a similiar ecological role?” was the question asked by Val Payn.

Dr Nick King's reply *“Good question, and no simple answers, but in this case, no, totally different systems. The Umzimvubu doesn't really have a floodplain to speak of and the catchment is so degraded it is not only washing the precious topsoil into the sea (not depositing it on a floodplain) but the flooding is exacerbated by lack of vegetation cover across the catchment. Most of South Africa's eastern seaboard rivers are similar i.e no floodplains but fantastically productive estuaries which have now almost all sadly been silted up by these soils loads coming off degraded catchments. Rivers with similar systems to the Nile (floodplains) e.g. the Pongola and Zambezi have had the production of the floodplains ruined by major dam construction upstream.....”*

The next question is.....HOW DO WE PREVENT THIS FROM HAPPENING?
The answer is easy.....whole catchment rehabilitation. So let's do it!!