"I grew to call the oil industry the rape, pillage and plunder industry"

Former Shell Oil civil engineer and Berkeley Professor Emeritus Robert Bea speaks on Hurricane Harvey

Barry Grey
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Robert Bea is a retired civil engineer and professor emeritus at the Center for Catastrophic Risk Management, University of California at Berkeley. He has had a long career in the fields of flood control and risk assessment and management, beginning in 1954 when he joined in the Army Corps of Engineers.

He was appointed chief offshore civil engineer at Shell Oil in 1965 and stationed in New Orleans. Four years later he was moved by Shell to Houston. After helping to develop the international consulting engineering contractor that became PMB-Bechtel, he joined the faculty at UC Berkeley. There he worked on the analysis of major failures and disasters involving engineered systems, such as the Hurricane Katrina disaster in New Orleans, the NASA Columbia Shuttle explosion, the BP Deepwater Horizon oil spill, the PG&E San Bruno pipeline explosion, and, most recently, the 2017 failures at the Oroville and Anderson dams in California.

Professor Bea spoke with the World Socialist Web Site on Wednesday from his home in California.

Robert Bea: The upset at the Oroville Dam and Anderson Dam in California this past winter is connected to Hurricane Harvey in Houston. In California, we're coming out of a very dramatic five-year drought. So this year we were blessed with a lot of fresh water, but the systems we had in place to help us benefit from this crucial resource were not prepared.

Worse yet, no one really understood the system as a system. It was a collection of disjointed pieces and parts. Well, that's just what we've seen unfold in Houston, Texas. The storm is much more intense than was expected—that's to be expected, actually. Global climate change is not a debate. The climate's been changing since there was a climate to change.

The system in Houston for "flood protection"—it's really not flood protection at all. It isn't a system. It's a bunch of disjointed pieces and parts.

Barry Grey: When you say it's not really a flood control system, could you elaborate on what you mean by that?

RB: Sure. The Corps of Engineers built nice piles of dirt we call the Barker and Addicks dams. We used to live a few miles from those dams. Our home was located in Memorial Estates, next to a wonderful area called Buffalo Bayou. As our sons grew up, it changed from a bayou to a swamp. The spillway for the Barker and Addicks dams turned into a clogged sewer pipe.

Surrounding it, the open country we saw when we first got there turned into strip malls and highways and research facilities and refineries. So the environment changed. There was no system to confront that set of environmental changes.

At the end of that picture, you open up the newspaper to see the news and say, "Oh, my God! We've got flooding in Houston." It looks like Hurricane Katrina in New Orleans. It looks like it because it's about the same damn thing.

BG: You know that just the other day the administrator of FEMA made a statement saying there's no way we could have anticipated this.

RB: That's total bullshit! I'm normally not that blunt. Absolutely total bullshit! You couldn't anticipate it because you weren't looking for it. To anticipate something you have to be looking carefully at it, analyzing what you see and what you detect. Who's looking carefully and analyzing carefully how in the hell water gets from north of Houston to south of Houston? Nobody.

Some of the pictures of levees that were breaking and will continue to break are just like the levees I found in New Orleans after Katrina. You had trees growing on them or around them. Trees undermine levees, so levee breaks should be no surprise.

BG: There have been numerous studies, reports, recommendations by the American Society of Civil Engineers and others, certainly since Katrina. What has been the response from the political establishment to those reports?

RB: None. I'm a lifetime member of the ASCE. We have carried that story here in California to our political representatives, including Senator Dianne Feinstein, Congresswoman Nancy Pelosi and others. It's unusual to find engineers doing this. I only did it at the end of my career.

We carried the story to them. They are intelligent people. They received us very politely. They had some great questions, particularly from their chiefs of staff. And after the doors closed, there's been total radio silence.

BG: In your view, is this a question of negligence, indifference…?

RB: Yes. First, on negligence. After a long career trail carried me to Berkeley, we researched what's known as a legal standard of care. There's a legal definition for it. It has five specific elements that have to be satisfied so that you can avoid a lack of the appropriate, legal standard of care—that is, what is called negligence.

I have applied those five critical characteristics toward what I have watched and personally experienced in Houston, Texas, and also here this year in California at Oroville Dam and Anderson Dam. Also, the Coyote Creek flooding in San Jose. Yes, this is a tragedy of neglect.

BG: The general line of government officials is that nothing could have

been done. What could have been done?

RB: An excellent question. Recognizing a problem is only the first step. I have networked with 26 different countries around the world. In my field development work, I was able to bring colleagues, experienced old people like me, from countries like the Netherlands here to the United States.

The Netherlands particularly is of interest to me because that is really a low-lying country. Yet the Dutch have quit sticking their fingers in the dyke and have learned to protect themselves from a vital resource called water. They have done some marvelous things to manage water risks, largely after the catastrophic flooding of 1956 that affected 80 percent of their country and damn near wiped the Netherlands off of the global map.

They even have an overarching governmental organization, a water risk management commission, that spans the entire country. They've applied very advanced risk management technology and they've bonded with some other advanced countries to implement that technology, so today the country is controlling water.

They had to do it over a long period of time. They had to learn, as they put it, to give water room. Water needs to be treated with respect. It has to flow from one spot to another. You've got to give it an open watercourse.

You can't have a plugged-up pipe like Buffalo Bayou, filled with swamp material and trees, trying to let water out of the Addicks Dam to get to the Gulf of Mexico. It has to be a coherent, respectful system. Yes, it costs money, but it costs far less than the destruction of the country of the Netherlands.

So they learned that lesson, and they make smaller, annual incremental investments, and boy are they stingy with their money! They make sure that the right money reaches the right places. And it's not a political money distribution process. They want it to be distributed according to the mitigation of the risk they are facing. Notice how different that story is than what goes on here in our blessed United States.

BG: What does go on in the blessed United States? What are the priorities here?

RB: Because of the blessings in the United States, particularly monetary blessings, we have the approach of watching things fail and then calling it a natural disaster. It's an approach that places our infrastructure at risk.

BG: But those monetary blessings increasingly are unequally distributed.

RB: Yes, that's right. That is exactly right.

BG: One of the things both Katrina and Harvey have revealed is the tremendous levels of poverty that exist.

RB: Yes. In New Orleans, my family got flooded out there in 1965, Hurricane Betsy. Our first home was in New Orleans east. Why did we buy a house in New Orleans east? Well, elevation minus 20 feet in reference to sea level. It was cheap. Of course, when the levees first broke there in 1965, that was the first area to get flooded.

We got wiped out, but I had a pretty damn good job working for Shell Oil Company at that time, so we could recover quickly. We sure had some neighbors who couldn't. They didn't have as good jobs. They didn't have parents who were on high ground who could help support their recovery. By the way, there was no FEMA in those days, thank God. There wasn't any 100-year flood insurance either in those days. But we recovered because we had the support.

But the poor populations that don't have that support are truly screwed. Look at what happened after Katrina in the Houston Astrodome. It was filled with evacuees from New Orleans. Well, today we have the Houston convention center filled with evacuees again, this time from Houston. And many of the people who are there are people who don't have all these blessings. So there is a disproportional effect on what we call the disadvantaged communities.

BG: On the other hand, there are people who are making money. If there had not been this massive and rapid development …

RB: Fueled by oil and gas. See, that's what brought us to Houston. I was employed by Shell. I was chief offshore engineer for Shell. I worked in downtown Houston. Next door we had Exxon, further down the street, Mobil. Later there were some guys from Sohio, British Petroleum, now known as BP. It is an oil and gas center. That was what was fueling that paving I was talking about that surrounded us in Houston.

BG: Why are they so interested in paving everything over and expanding and building and developing and destroying wetlands and prairie lands? What's in it for them?

RB: Well, the first answer I'll give, it's honest, not filtering the words. It comes from very extensive experience with the oil and gas industry internationally. I grew to call it the rape, pillage and plunder industry. Those are pretty severe negative words, but I came to understand that it's very much like a mountain lion.

Mountain lions are actually very interesting beasts. They're very efficient and effective at what they do. But if you're prey and you turn your back on this lovable creature, it can eat you alive.

Well, the industry is a group of people charged with doing one thing, and that's to produce oil and gas resources. And they've got to do that with acceptable profitability, so this very severe negative thing I said about rape, pillage and plunder is actually the natural outcome of a very powerful commercial industry. It's the largest and most powerful commercial and industrial enterprise in the history of this earth, including the military enterprise.

BG: If Houston had not expanded as it did and paved over these natural lands, how much of a difference do you think that alone would have made in terms of the impact of the hurricane?

RB: Look at Lake Charles, Louisiana, which is probably getting rainfall from Harvey right now. It has refineries, etc., but it has merged in a much more respectful way with the environment that preceded it. I can already tell you—I know it's dangerous to predict these kinds of things—but there's not going to be nearly the disaster there as the one that has hit Houston.

BG: Because of the fact that they haven't destroyed all of these natural absorbing lands?

RB: Bingo! Unfortunately, it's not largely been the product of a plan. It's actually been a product of a series of circumstances that didn't allow it to become a paved strip mall.

BG: Aside from not having all this unchecked development, what else could and should have been done to minimize the impact of a hurricane or a major storm? What other things could have been done in the Houston area?

RB: Bring over a whole bunch of smart, experienced people from the Netherlands and say, "OK, we want to develop this area so that it can look like Rotterdam." That's a very vital port. It's got manufacturing, petroleum refining facilities, all sorts of things that provide goods and services to and from the Netherlands.

Bring them over and say, "OK, Dutch guys, we're not going to stick fingers in our dykes anymore. We don't have a lot of money, so we're going to have to spend money cautiously, stingily if you will, carefully. And we want to manage water with respect. We're going first to develop a coherent, integrated system, and that system has to include the environment. And that environment has to include people, their welfare, which has to be provided for."

Let's start thinking long-term, not short-term. Here in the United States, we like to fix it fast and go back to our enjoyable lives. Sorry, but you can't work problems like this short-term. So it's got to be a long-term vision that says, OK, this can be done correctly. We've learned how to do it correctly in other parts of the world. Let's take the best of that knowledge, let's manage our resources very carefully—you might call it being stingy—using the best of the knowledge about how to do this and let's go to work. And understand that the process can never stop.

That's a real change in thinking, and we haven't shown signs of that change in thinking here in our blessed United States.

BG: You raised the question of money. The *Financial Times* today has an article about what has happened to the 10 richest billionaires in the world since the Wall Street crash of 2008. Bill Gates, who was number one then, is still number one, except that he's gone from $60 billion to almost $100 billion. All of them, it's the same.

RB: The rich get richer and the poor get poorer.

BG: There's trillions of dollars stashed away in bank accounts and stock portfolios, but there's no money to protect people from floods.

RB: Bingo! I developed for my graduate students at Berkeley a simple equation for these disasters. It was A+B = C. It's like two plus three equals five. "A" I call natural hazards. It could be lots of rainfall, incredible amounts of rainfall as with Hurricane Harvey.

"B"—there's an interesting list there. It includes hubris, arrogance, greed, complacency, corruption, incompetence, indolence, ignorance.

"C" is a disaster, sooner or later.

Well, you've got your finger on the "B," buddy. What's driving these things nutty is the "B" things. You're learning why engineers are mostly engineers, because they don't like "B."

BG: The WSWS has an editorial today on the question of planning. We counterpose what we call the anarchy of the capitalist market with the need for planning. We believe that what's happening in Houston is a tragic example of the result of no planning, and instead, anarchy driven by personal greed.

RB: It's not driven solely by greed. There are other ingredients—arrogance, hubris. I find it really difficult to watch television any more, particularly news, when I watch our president talking. And I watch with great apprehension when he makes a trip to Corpus Christi or Austin, Texas. I'm worried about those "B" factors, and I've seen them reinforced.

BG: Has this problem, in your view, gotten worse over the years, better, or stayed the same?

RB: It's getting worse. Houston is a good example. We're continuing to commercialize, industrialize, populize the United States. And we're putting this new stuff on top of the old stuff. Well, if the foundation is crumbling, it can't take anymore, and you pile more on top of it, it's going to get worse.

BG: What do you think should be done? What do you think the answer is?

RB: Personally, we've moved to higher ground. We've moved from minus 20 feet when we lived in New Orleans to plus 652 in California. We've taken the measures we can to protect ourselves.

And then, I've taken my retirement time and said, I guess I better try to tell my story, even if it's got to be a simple equation like A+B=C.

The major point is to please keep doing what you're doing—getting the word out to the public, so that the people, particularly here in the United States, who are victims of this corruption and incompetence, can start to see how it can be corrected.

If you can keep that work up, I'll bless you forever.