MAKING SENSE #9

When science speaks, who listens?

A Call for Evidence-Based Governance in Lebanon

Had Lebanese officials listened to science, Beirut would not have been devastated by one of the largest non-nuclear explosions in history. Scientific reasoning alone would have prevented the storage of explosive ammonium nitrate in the sun, next to fireworks and flammable material, in a densely populated port. But in Lebanon, science is often sidelined—brushed off as unnecessary, or worse, as a threat to vested interests.

For decades, my colleagues and I have produced evidence to prevent exactly this kind of negligence. We exposed environmental and health dangers long before they turned into national catastrophes. And yet, they continue to find spokespeople ready to defend inaction, cast doubt on evidence, or delay accountability. The facts are there. The risks are known. But instead of acting, they invent new ways to discredit science and the people behind it.

Take smoking. For years, waterpipe (nargileh) smoking was falsely considered a safer alternative to cigarettes. Through years of research at the American University of Beirut, I and several colleagues demonstrated that a single waterpipe session exposes a person to 40 times more carcinogens than a cigarette. Our data helped shift the global narrative, influencing tobacco control worldwide. We later expanded our research to electronic cigarettes, disproving the tobacco industry's myth that e-cigs are a safe alternative. This science earned international recognition—but in Lebanon, policies remain weak, and enforcement remains hostage to industry influence.

Another example is diesel generator pollution. For over two decades, I have documented the toxic emissions from these machines. Long before the power collapse pushed every neighborhood to rely on them, I was measuring particulate matter and cancer-causing compounds. My findings—covered by major international outlets—show a direct correlation between diesel pollution and the rising cancer rates in Lebanon. What made this work so impactful is that it was never polarized—diesel smoke kills everyone, regardless of politics, class, or sect. That universality left little room for distortion, and it's exactly how the story was reported: as a public health emergency, not a political debate. Only recently have some districts begun to act, thanks to my coordinated efforts with environmental prosecutors—once again, driven by science, not politics.

Then there is Lebanon's most visible shame: solid waste mismanagement. Rather than fall into the trap of offering technical fixes alone, our team approached the problem through four lenses: technical, financial, legal, and governance. We developed a computer-based tool that allows decision-makers to input local data and receive scientifically backed waste management options tailored to each region. The

results are clear: incinerators are neither appropriate nor affordable for Lebanon's waste composition and energy capacity. Yet the incinerator project resurfaces year after year—not because it's the right solution, but because it serves as a convenient excuse to keep embezzling donor money under the illusion of reform.

The problem in Lebanon is not the absence of scientific knowledge. The problem is the systematic suppression of science by political and financial interests. Truth is sidelined in favor of narratives that justify inaction, corruption, or fake solutions. And here, some people in the media play a critical role—whether by amplifying misleading claims, offering platforms to discredit science, or shaping public opinion to serve political agendas rather than public interest.

Science has long been a force for responsible governance—when we choose to listen. After World War II, figures like Albert Einstein warned of the dangers of political power without scientific oversight. He called for a global system rooted in rationality, transparency, and ethical accountability—especially in the face of emerging technologies like nuclear power. Since then, science has shaped major reforms in health, environment, and more recently, digital policy: from AI regulation in the EU to climate mitigation targets in Scandinavia, and from toxic emissions control in California to pandemic response systems in South Korea. In each case, governments recognized science not as a threat—but as a tool to protect lives, ensure justice, and build public trust.

But in Lebanon, science is often treated as an inconvenience—something to downplay, politicize, or ignore altogether. This is not just a missed opportunity. It is a dangerous pattern that costs lives and erodes what remains of public confidence in the state.

Lebanon does not lack knowledge. It lacks a system that respects it.

Despite all this, I remain hopeful. Over the years, I have taught and mentored thousands of students—many of whom are now leading scientists, policymakers, and even ministers around the world. Their work, and that of many others like them, is shaping cleaner environments, smarter policies, and more accountable governments. Because of them, I am confident that science will prevail. What we are witnessing today—the distortion of facts, the manipulation of data, the defense of oligarchic interests at the expense of people—is not a reflection of science's weakness. It is a symptom of a failed system, not only in Lebanon but across the globe. And like all failing systems, it is being replaced.

We are living through a transition. A new generation, equipped with evidence, ethics, and courage, is rising to reclaim policy from propaganda. The age of ignoring science is ending. The age of building with it has already begun.