CUMULATIVE IMPACTS PRIMER

NEW JERSEY ENVIRONMENTAL JUSTICE ALLIANCE

A

The issue of cumulative impacts focuses on developing ways to address multiple sources of pollution in environmental justice (EJ) communities (i.e., Indigenous communities, communities of color and low-income communities). The primary concern is the detrimental impact(s) that a combination of pollutants can have on the health of community residents.

B

Definition of cumulative impacts:
Risks and impacts caused by multiple pollutants, usually emitted by multiple sources, in isolation and by their interaction with each other and with any social vulnerabilities that exist in a community.

C

Cumulative impacts has been a difficult issue to address for at least three reasons:

- The U.S. regulates pollution by setting standards for individual pollutants and polluters. However, the individual standards do not consider the total amount of pollution that is composed of different pollutants from different sources. There can be detrimental health impacts even if no individual standard is violated.
- Laws, regulations, and health risk assessments do not consider that residents of EJ communities may be more vulnerable to pollution due to factors out of their control, including the impacts of racism and other social determinants of health.
- The level of cumulative impacts can be connected to race and income because there are often more unwanted land uses, including polluting facilities, in EJ communities.

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D

Cumulative impacts encompass three effects that can occur when you combine pollutants: additive, synergistic, and antagonistic. The effects that are of concern are the additive and synergistic effects.

- If the effect is additive, the impact of two pollutants are simply summed when combined. For example, if the cancer risk due to pollutant number one is one in a million in isolation and the cancer risk due to pollutant number two is one in a million in isolation, then the cancer risk when they are combined is two in a million.
- If the effect is synergistic, the impact of combining two pollutants is greater than their sum. For example, if the cancer risk due to pollutant number three is one in a million in isolation and the cancer risk due to pollutant number four is one in a million in isolation, then the cancer risk when they are combined is greater than two in a million. In other words, their effect when combined is more than the effects when each act separately.
- If the effect is antagonistic, the impact of combining two pollutants is less than their sum. For example, if the cancer risk due to pollutant number five is one in a million in isolation and the cancer risk due to pollutant six is one in a million in isolation, then the cancer risk when they are combined is less than two in a million. In other words, their effect when combined is less than the effects when they act separately.

E

The EJ community, working with partners and supporters, has been successful in moving the issue of cumulative impacts from the margin to the mainstream of environmental policy discussions.

- Policymakers now acknowledge that cumulative impacts is an issue that must be addressed.
- Tools have been developed that measure or map cumulative impacts.
- It has been difficult to convince governmental bodies to enact and implement substantive cumulative impacts policies. However, in recent years several substantive cumulative impacts policies have been proposed on a federal level, and actually adopted on a state and local level. For examples, see the cumulative impacts policy primer.

This factsheet was created by the Center for the Urban Environment, the New Jersey Environmental Justice Alliance, and the Tishman Environment and Design Center in June 2024.

WWW.NJEJA.ORG • INFO@NJEJA.ORG • (973) 306-4696 • 45 ACADEMY ST, SUITE 205, NEWARK, NJ