## Cumulative Impacts Basic Primer



This fact sheet was created by: the New Jersey Environmental Justice Alliance and the Center for the Urban Environment of the John S. Watson Institute for Urban Policy and Research at Kean University

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). Of most concern are the detrimental impacts that a combination of pollutants can have on the health of community residents.

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## 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.

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

- The U.S. regulates pollution by setting standards for individual pollutants.
  - But the individual standards do not take into account the total amount of pollution that is composed of different types of pollutants. There can be detrimental health impacts even if no individual standard is violated.
- Laws, regulations, and health risk assessments often do not take into account that residents of EJ communities may be more vulnerable to pollution due to a number of factors out of their control, including the impacts of racism.
- The level of cumulative impacts can be connected to race and income because there are often more unwanted land uses, including polluting facilities, in communities Of Color and communities with lowincome.

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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.

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- If the effect is additive, it means the impact of two pollutants are simply summed when combined. For example, if the cancer risk due to particulate matter is one in a million in isolation and the cancer risk due to benzene 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, it means the impact of combining two pollutants is greater than their sum. For example, if the cancer risk due to particulate matter is one in a million in isolation and the cancer risk due to benzene 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 it is when each act separately.
- If the effect is antagonistic, it means the impact of combining two pollutants is less than their sum. For example, if the cancer risk due to particulate matter is one in a million in isolation and the cancer risk due to benzene 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 it is when they act separately.

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The EJ community has been successful in moving the issue of cumulative impacts from the margin to the mainstream of environmental policy discussions.

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- Policymakers now acknowledge that cumulative impacts are an issue that must be addressed.
- Tools have been developed that measure or map cumulative impacts.
- However, not many substantive policies have been developed that actually reduce the amount of pollution and cumulative impacts in a community. This is the next step we must take to address this difficult issue, and we are making progress with both New Jersey and New York adopting strong laws addressing the issue.

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