Chemical Exposure Action Map FAQs

1. **What is the Chemical Exposure Action Map?**
   The Chemical Exposure Action Map highlights exposure from multiple chemicals designated as "high-priority" under the Toxic Substances Control Act (TSCA) at EPA as well as per- and polyfluoroalkyl substances (PFAS), known as "forever chemicals", that are associated with cancer, asthma and developmental harm. The map shows the chemical plants that release these chemicals into our environment and the amount of the combined releases of chemicals that are associated with each of these health harms. It also includes data on baseline health, socioeconomic, and climate vulnerabilities (see FAQ #5) of the communities affected by these releases.

   You can use the map to encourage EPA to look more holistically at the risks we face from exposure to multiple chemicals when regulating them. EPA's current approach of regulating chemicals one-by-one underestimates the risks we face.

2. **What data are included in the map?**
   The Chemical Exposure Action Map uses data from three sources:

   - **U.S. American Community Survey**. This source provides demographic information such as race and ethnicity, median income, and population age.
   - **EPA's Toxics Release Inventory** (TRI) data. TRI includes information on environmental releases and other waste management of certain toxic chemicals by chemical plants and other facilities. U.S. facilities in multiple industries that use and release or otherwise manage toxic chemicals as waste must report annually how much of each chemical they are releasing into the environment and/or managing through recycling, energy recovery, and treatment (ways to either remove or destroy the chemical). For the map, we used the releases (except releases to Class I wells and RCRA subtitle C facilities) reported by the facilities which include the amounts of the toxic chemical emitted to the air, water, and land or transported to other facilities.
   - **EDF's Climate Vulnerability Index** (CVI). Measures of baseline health, socioeconomic, and flooding and storms vulnerability were added from CVI for each Census tract. These represent combined sets of factors—health, social and economic, infrastructure, environmental, and climate—that may reduce resilience or are potential sources of long-standing community inequity or injustice.

   Click here to download the combined data used in the map. For more information on the methodology used in the map, visit our methods document or our Github.

3. **Does the Chemical Exposure Action Map include information for *all* TRI chemicals and releases?**
   No. The map includes release information for 28 TRI chemicals that are part of a set of high-priority chemicals that EPA is currently assessing (or will soon assess) for regulation under TSCA as well as releases of the group of PFAS that EPA has added to TRI. The map does not include releases to RCRA Subtitle C landfills and Class I Injection Wells which, although considered as releases under TRI, have limited potential for human exposure to chemicals when released to these types of landfills and wells.

4. **Do the TRI data include releases from all facilities in my area?**
   Facilities that report their chemical releases to EPA are typically larger and are involved in the manufacturing of chemicals, metal and coal mining, generating electric power, and treating hazardous waste. These are known as "covered sectors." Not all industry sectors are covered by the TRI program, and not all facilities in the covered sectors are required to report to TRI. TRI excludes facilities in covered sectors that have fewer than 10 full-time employees and those that import, produce, or use smaller amounts of chemicals.

   There are other facilities or sites that could be releasing these toxic chemicals into the air, water and land in communities that can contribute to their exposure to toxic chemicals. For example, some waste sites, incinerators, and other facilities that are not included in TRI could be contributing to chemical pollution via air, water, and land. However, these waste sites often do not provide publicly available data on their production or releases.

5. **What is "vulnerability" for the purposes of this map?**
   This map incorporates data related to a community's vulnerabilities as defined by the Climate Vulnerability Index (CVI). For the purposes of this map, vulnerability is the state of being at greater risk for harmful health impacts—not only from living in close proximity to chemical exposures, but also from other factors that may reduce health resilience or are potential sources of long-standing community inequity or injustice.

   The Baseline Health as well as the Social and Economic vulnerability indices were taken directly from the CVI. The Flooding and Storms index was formed as the average of the vulnerability percentiles from the following indicators from the CVI: Coastal Flooding, Riverine Flooding, Sea Level Rise, Hurricane Annualized Frequency, Tornado Annualized Frequency.

   County and Census tract vulnerability levels range from "Very High" to "Very Low" based on values taken directly from the CVI or calculated as described above. The following represents the groupings used for each vulnerability layer:

   - Baseline Health & Social and Economic: "Very High" includes tracts above the 90th percentile, "High" includes tracts in the 75th – 90th percentile, "Medium" includes tracts in the 50th – 75th percentile, "Low" includes tracts in the 25th – 50th percentile, and "Very Low" includes tracts below the 25th percentile.

   - Flooding and Storms: "Very High" includes tracts above the 65th percentile, "High" includes tracts in the 53rd – 65th percentile, "Medium" includes tracts in the 42nd – 53rd percentile, "Low" includes tracts in the 30th – 42nd percentile, and "Very Low" includes tracts below the 30th percentile.

6. **How is the Chemical Exposure Action Map different from other chemical and environmental justice mapping tools?**
   This map illustrates the importance of considering chemical risks cumulatively. It visualizes the releases of multiple chemicals that can cause the same health harm (cancer, asthma, developmental harm). The data layers related to a community's vulnerabilities indicates pre-existing and long-term health, social, environmental, and economic conditions that may make a community more vulnerable to health risks from

exposure to these toxic chemicals and a community's vulnerability to climate-related events.

The map focuses on 28 high priority chemicals that EPA is in the process of assessing and regulating under the Toxic Substances Control Act (TSCA) as well as a group of 180 PFAS – toxic "forever chemicals" (EPA has only added a subset of PFAS to TRI). This tool gives users the ability to take action by sending a letter to EPA urging the Agency to consider cumulative risk when assessing and regulating these chemicals – and to do so quickly – by pulling in data on the chemical exposures directly from the map. EPA chose these chemicals because they are some of the more toxic chemicals that are used today. In addition, we know that some of them cause cancer, asthma, and developmental harm. When choosing high-priority chemicals, EPA also considered if they were a concern for susceptible populations such as children, the elderly, and pregnant people.

7. **How often will EDF update the Chemical Exposure Action Map?**
   We will update the map at least once each calendar year as updates to existing data used in the map are available. For example, TRI data is updated yearly. We may also integrate new data sources. EDF will also update the chemicals in the map as EPA identifies additional chemicals for action.

8. **Why did EDF choose a radius of 10 km (~6 miles) for the map?**
   This is the distance EPA is using to analyze health risks to communities near industrial facilities that are releasing toxic chemicals. We used the same 10km radius for demographic data to investigate disparities between communities closest to industrial facilities and communities farther away from chemical pollution sources. However, it's important to note that communities farther than 10 km from industrial releases might also be exposed to these toxic chemicals.

9. **Why does the Chemical Exposure Action Map focus on cancer, asthma, and developmental harm?**
   We focus on these health effects because they are three of the most common and most sensitive health harms caused by exposure to the 28 chemicals and 180 PFAS included in this map.

10. **Does the Chemical Exposure Action Map show all the risks I face from these toxic chemicals?**
    No. While the Chemical Exposure Action Map shows the amount of chemical releases into the environment that can cause cancer, asthma, and developmental harm, it does ***not*** provide specific quantitative risks or show the many other health harms these chemicals pose to individuals.

11. **What is a weighted risk level and how was it determined?**
    For this map's purposes, the weighted risk level is equal to the total pounds of chemical releases from the facility from 2018-2022 multiplied by a toxicity weight. Toxicity weights were given a value by EDF from 0 to 1 based on the toxicity of the chemical with 1 being most toxic compared to the other chemicals in the map. Weighted risk levels were categorized as "lower" if the weighted sum was less than 20,000 lbs, "higher" if less than 100,000 lbs, and "highest" if above 100,000 lbs. For more detailed information on the toxicity weighting for each group of chemicals within a health risk, please refer to our methods document.

12. **What does it mean to have "lower" risk level? Does that mean I am not at risk from exposure to toxic chemicals?**
    The health risks indicated as "Weighted Risk Level" on the map are relative to the other chemical releases represented in the map. That means that the health risk categories (i.e., "higher", "high", and "lower") are based on the total pounds of chemical releases and the level of toxicity of only the chemicals that are included in the map. Therefore, even if the map categorizes a facility's releases as a "lower health risk" to surrounding communities, that doesn't mean there is ***no*** risk from exposure to those toxic releases.

    Individuals who are exposed to low levels of ***any*** of the chemicals included in this map may still be at risk for certain health harms–depending on multiple factors, such as the amount and/or length of the chemical exposure, the toxicity of the chemical(s), and other factors that could contribute to higher risks for health harms.

13. **Can these chemicals cause other toxic effects?**
    Yes. Many of these chemicals can cause other health effects. For example, most of these chemicals can cause headaches and irritation to the skin, throat, nose, and eyes when exposed for short periods of time. Other health effects from repeated exposure could include harm to the heart, liver, kidney, and thyroid—any and all of which can cause a multitude of other negative symptoms and health problems.

14. **Why does the Chemical Exposure Map include some facilities that don't contribute to any of the three health harms our map focuses on? Are there no health risks near these facilities?**
    There are a few facilities that release chemicals (1,2-dichlorobenzene or 1,2-dichloroethylene) that don't appear to contribute to cancer, developmental harm, or asthma, but they have other toxic effects—such as damage to the central nervous system, liver, or circulatory system. Although they don't contribute to cancer, developmental harm, or asthma, they still are toxic and can contribute to health harms. These chemicals are still high-priority and are undergoing evaluation and management under TSCA.