

## ***Transformational Solutions through Science Innovation***

EPA's Office of Research and Development provides critical support to the Agency's environmental policy decisions and regulatory actions to protect human health and the environment. EPA research has provided effective solutions to environmental problems for the past 40 years. The Agency's research has informed risk reduction approaches that have resulted in cleaner air, land and water. However, today's increasingly complex public health and environmental problems require an evolved approach to research. Scientific innovation is needed to produce transformational solutions beyond those more narrowly targeted to single chemicals or problems.

To address these new challenges, in FY 2012 EPA is strengthening its planning and delivery of science by implementing an integrated research approach that looks at problems from a systems perspective. Research will leverage the diverse capabilities of in-house scientists and engineers and bridge traditional scientific disciplines. In addition, research plans will incorporate input from external stakeholders such as Federal, State, and local government agencies, non-governmental organizations, industry, and communities affected by environmental problems.

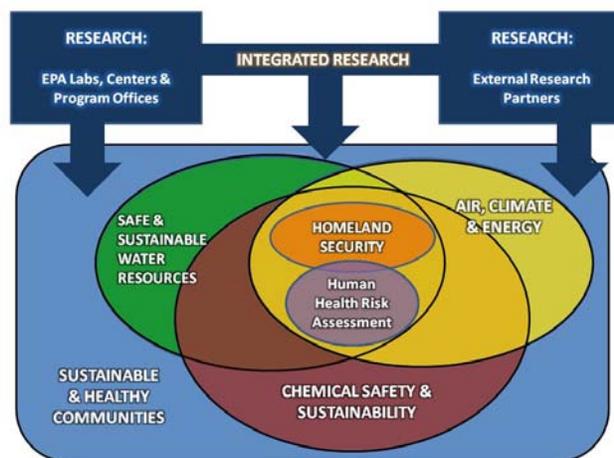
EPA will implement this new approach by realigning and integrating the work of twelve of its base research programs into four new research programs:

- **Air, Climate, and Energy**
- **Safe and Sustainable Water Resources**
- **Sustainable and Healthy Communities**
- **Chemical Safety and Sustainability**

This integration capitalizes on existing capabilities and promotes the use of a transdisciplinary perspective to further EPA's mission.

For example, available tools have failed to fully address complex aspects of chemical risk such as the impact of life-stage vulnerability, genetic susceptibility, disproportionate exposures, and cumulative risk. By formally integrating chemicals research, EPA will combine developments in computational, physico-chemical, and biological science to advance science in the sustainable development, use, and assessment of chemicals.

Within the new integrated programs, EPA will continue research to address targeted, existing problems and provide technical support, with an emphasis on sustainable applications and outcomes. The Human Health Risk Assessment and Homeland Security Research programs also will continue as key components of EPA's overall research portfolio.



**EPA Office of Research and Development FY 2010 to FY 2012 in NEW Program/Project Structure<sup>1</sup>**

| Appropriation                      | Program/Project                                | 2010 Enacted                             |                  | 2011 CR <sup>2</sup> |                  | 2012 Pres Bud <sup>3</sup> |                  | 2012 vs 2010     |                  |              |
|------------------------------------|--|--|------------------|----------------------|------------------|----------------------------|------------------|------------------|------------------|--------------|
|                                    |  | \$000                                    | FTE              | \$000                | FTE              | \$000                      | FTE              | \$000            | FTE              |              |
| Science & Technology               | Earmarks                                       | \$4,700                                  | 0.0              | \$4,700              | 0.0              | \$0                        | 0.0              | -\$4,700         | 0.0              |              |
|                                    | Homeland Security                              | <b>Total Program</b>                     | <b>\$32,861</b>  | <b>55.5</b>          | <b>\$32,861</b>  | <b>55.5</b>                | <b>\$24,684</b>  | <b>62.7</b>      | <b>-\$8,177</b>  | <b>7.2</b>   |
|                                    |  | <i>Decontamination</i>                   | \$20,890         | 40.2                 | \$20,890         | 40.2                       | \$15,637         | 44.0             | -\$5,253         | 3.8          |
|                                    |  | <i>Safe Buildings</i>                    | \$1,996          | 0.0                  | \$1,996          | 0.0                        | \$0              | 0.0              | -\$1,996         | 0.0          |
|                                    |  | <i>Other Research</i>                    | \$9,975          | 15.3                 | \$9,975          | 15.3                       | \$9,047          | 18.7             | -\$928           | 3.4          |
|                                    | Human Health Risk Assessment                   | \$42,899                                 | 167.6            | \$42,899             | 167.6            | \$42,400                   | 180.9            | -\$499           | 13.3             |              |
|                                    | Research: Air, Climate and Energy              | <b>Total Program</b>                     | <b>\$111,449</b> | <b>313.6</b>         | <b>\$111,449</b> | <b>313.6</b>               | <b>\$108,000</b> | <b>309.6</b>     | <b>-\$3,449</b>  | <b>-4.0</b>  |
|                                    |  | <i>Global Change Research</i>            | \$20,822         | 35.5                 | \$20,822         | 35.5                       | \$20,805         | 41.2             | -\$17            | 5.7          |
|                                    |  | <i>Clean Air Research</i>                | \$81,605         | 268.5                | \$81,605         | 268.5                      | \$83,102         | 261.8            | \$1,497          | -6.7         |
|                                    |  | <i>Other Research</i>                    | \$9,022          | 9.6                  | \$9,022          | 9.6                        | \$4,093          | 6.6              | -\$4,929         | -3.0         |
|                                    | Research: Safe and Sustainable Water Resources | <b>Total Program</b>                     | <b>\$111,073</b> | <b>427.0</b>         | <b>\$111,073</b> | <b>427.0</b>               | <b>\$118,776</b> | <b>439.6</b>     | <b>\$7,703</b>   | <b>12.6</b>  |
|                                    |  | <i>Drinking Water Research</i>           | \$49,129         | 190.2                | \$49,129         | 190.2                      | \$52,521         | 196.2            | \$3,392          | 6.0          |
|                                    |  | <i>Water Quality Research</i>            | \$61,944         | 236.8                | \$61,944         | 236.8                      | \$66,255         | 243.4            | \$4,311          | 6.6          |
|                                    | Research: Sustainable and Healthy Communities  | <b>Total Program</b>                     | <b>\$188,095</b> | <b>551.1</b>         | <b>\$186,095</b> | <b>551.1</b>               | <b>\$170,528</b> | <b>529.7</b>     | <b>-\$17,567</b> | <b>-21.4</b> |
|                                    |  | <i>Human Health Research</i>             | \$54,180         | 106.7                | \$53,180         | 106.7                      | \$45,392         | 112.2            | -\$8,788         | 5.5          |
|                                    |  | <i>Ecosystems Research</i>               | \$71,698         | 272.4                | \$70,698         | 272.4                      | \$60,906         | 255.7            | -\$10,792        | -16.7        |
|                                    |  | <i>Other Research</i>                    | \$62,217         | 172.0                | \$62,217         | 172.0                      | \$64,230         | 161.8            | \$2,013          | -10.2        |
|                                    | Research: Chemical Safety and Sustainability   | <b>Total Program</b>                     | <b>\$77,831</b>  | <b>283.7</b>         | <b>\$77,831</b>  | <b>283.7</b>               | <b>\$95,657</b>  | <b>292.7</b>     | <b>\$17,826</b>  | <b>9.0</b>   |
|                                    |  | <i>Endocrine Disruptors Research</i>     | \$11,350         | 50.1                 | \$11,350         | 50.1                       | \$16,883         | 46.1             | \$5,533          | -4.0         |
|                                    |  | <i>Computational Toxicology Research</i> | \$20,044         | 32.7                 | \$20,044         | 32.7                       | \$21,209         | 34.4             | \$1,165          | 1.7          |
| <i>Other Research</i>              |  | \$46,437                                 | 200.9            | \$46,437             | 200.9            | \$57,565                   | 212.2            | \$11,128         | 11.3             |              |
| <b>S&amp;T Appropriation Total</b> |  | <b>\$568,908</b>                         | <b>1798.5</b>    | <b>\$566,908</b>     | <b>1798.5</b>    | <b>\$560,045</b>           | <b>1815.2</b>    | <b>-\$8,863</b>  | <b>16.7</b>      |              |
| LUST                               | Research: Sustainable and Healthy Communities  | \$345                                    | 1.9              | \$345                | 1.9              | \$454                      | 1.6              | \$109            | -0.3             |              |
| Inland Oil Spills                  | Research: Sustainable and Healthy Communities  | \$639                                    | 0.9              | \$639                | 0.9              | \$614                      | 0.9              | -\$25            | 0.0              |              |
| Superfund                          | Homeland Security                              | \$2,166                                  | 2.0              | \$2,166              | 2.0              | \$1,968                    | 2.0              | -\$198           | 0.0              |              |
|                                    | Human Health Risk Assessment                   | \$3,404                                  | 14.9             | \$3,404              | 14.9             | \$3,342                    | 14.9             | -\$62            | 0.0              |              |
|                                    | Research: Sustainable and Healthy Communities  | \$21,264                                 | 93.1             | \$21,264             | 93.1             | \$17,706                   | 89.5             | -\$3,558         | -3.6             |              |
|                                    | <b>Superfund Appropriation Total</b>           | <b>\$26,834</b>                          | <b>110.0</b>     | <b>\$26,834</b>      | <b>110.0</b>     | <b>\$23,016</b>            | <b>106.4</b>     | <b>-\$3,818</b>  | <b>-3.6</b>      |              |
| <b>GRAND TOTAL</b>                 |  | <b>\$596,726</b>                         | <b>1911.3</b>    | <b>\$594,726</b>     | <b>1911.3</b>    | <b>\$584,129</b>           | <b>1924.1</b>    | <b>-\$12,597</b> | <b>12.8</b>      |              |

NOTES:

<sup>1</sup>FY 2010 Enacted includes the \$2M supplemental for research to determine human health and environmental impacts of oil spill dispersants. Differences in totals between new and former program areas reflect transfers and cross-walk adjustments for workforce support costs.

<sup>2</sup>FY 2011 CR represents an annualized continuing resolution based on FY 2010 Enacted levels excluding supplemental appropriations.

<sup>3</sup>FY 2012 total for Research: Sustainable and Healthy Communities excludes \$0.5M in Agency green conferencing resources not included as part of the Office of Research and Development budget.

## EPA Office of Research and Development FY 2010 to FY 2012 in FORMER Program/Project Structure <sup>1</sup>

| Appropriation                      | Program/Project                       | 2010 Enacted                |                 | 2011 CR <sup>2</sup> |                 | 2012 Pres Bud <sup>3</sup> |                 | 2012 vs 2010     |                 |             |
|------------------------------------|---------------------------------------|-----------------------------|-----------------|----------------------|-----------------|----------------------------|-----------------|------------------|-----------------|-------------|
|                                    |                                       | \$000                       | FTE             | \$000                | FTE             | \$000                      | FTE             | \$000            | FTE             |             |
| Science & Technology               | Earmarks                              | \$4,700                     | 0.0             | \$4,700              | 0.0             | \$0                        | 0.0             | -\$4,700         | 0.0             |             |
|                                    | Homeland Security                     | Total Program               | \$32,861        | 55.5                 | \$32,861        | 55.5                       | \$24,684        | 62.7             | -\$8,177        | 7.2         |
|                                    |                                       | Decontamination             | \$20,890        | 40.2                 | \$20,890        | 40.2                       | \$15,637        | 44.0             | -\$5,253        | 3.8         |
|                                    |                                       | Safe Buildings              | \$1,996         | 0.0                  | \$1,996         | 0.0                        | \$0             | 0.0              | -\$1,996        | 0.0         |
|                                    |                                       | Other Research              | \$9,975         | 15.3                 | \$9,975         | 15.3                       | \$9,047         | 18.7             | -\$928          | 3.4         |
|                                    | Human Health Risk Assessment          | \$44,789                    | 173.7           | \$44,789             | 173.7           | \$44,108                   | 187.4           | -\$681           | 13.7            |             |
|                                    | Research: Global Change               | \$20,826                    | 35.5            | \$20,826             | 35.5            | \$20,810                   | 41.2            | -\$16            | 5.7             |             |
|                                    | Research: Clean Air                   | \$81,917                    | 269.5           | \$81,917             | 269.5           | \$83,313                   | 262.8           | \$1,396          | -6.7            |             |
|                                    | Research: Drinking Water              | \$49,155                    | 190.2           | \$49,155             | 190.2           | \$52,547                   | 196.2           | \$3,392          | 6.0             |             |
|                                    | Research: Water Quality               | \$61,918                    | 236.8           | \$61,918             | 236.8           | \$66,229                   | 243.4           | \$4,311          | 6.6             |             |
|                                    | Research: Human Health and Ecosystems | Total Program               | \$161,511       | 484.9                | \$159,511       | 484.9                      | \$145,446       | 475.0            | -\$16,065       | -9.9        |
|                                    |                                       | Human Health Research       | \$84,904        | 211.2                | \$83,904        | 211.2                      | \$45,392        | 112.2            | -\$39,512       | -99.0       |
|                                    |                                       | Ecosystems Research         | \$76,607        | 273.7                | \$75,607        | 273.7                      | \$60,906        | 255.7            | -\$15,701       | -18.0       |
|                                    |                                       | Other Research <sup>4</sup> | \$0             | 0.0                  | \$0             | 0.0                        | \$39,148        | 107.1            | \$39,148        | 107.1       |
|                                    | Research: Land Protection             | \$14,111                    | 58.8            | \$14,111             | 58.8            | \$13,601                   | 57.3            | -\$510           | -1.5            |             |
|                                    | Research: Fellowships                 | \$11,083                    | 2.6             | \$11,083             | 2.6             | \$17,261                   | 6.4             | \$6,178          | 3.8             |             |
|                                    | Research: Sustainability              | \$27,287                    | 70.8            | \$27,287             | 70.8            | \$26,788                   | 67.0            | -\$499           | -3.8            |             |
|                                    | Research: Pesticides and Toxics       | \$27,347                    | 137.4           | \$27,347             | 137.4           | \$27,159                   | 135.3           | -\$188           | -2.1            |             |
|                                    | Research: Endocrine Disruptors        | \$11,355                    | 50.1            | \$11,355             | 50.1            | \$16,888                   | 46.1            | \$5,533          | -4.0            |             |
|                                    | Research: Computational Toxicology    | \$20,048                    | 32.7            | \$20,048             | 32.7            | \$21,211                   | 34.4            | \$1,163          | 1.7             |             |
| <b>S&amp;T Appropriation Total</b> |                                       | <b>\$568,908</b>            | <b>1798.5</b>   | <b>\$566,908</b>     | <b>1798.5</b>   | <b>\$560,045</b>           | <b>1815.2</b>   | <b>-\$8,863</b>  | <b>16.7</b>     |             |
| LUST                               | Research: Land Protection             | \$345                       | 1.9             | \$345                | 1.9             | \$454                      | 1.6             | \$109            | -0.3            |             |
| Inland Oil Spills                  | Research: Land Protection             | \$639                       | 0.9             | \$639                | 0.9             | \$614                      | 0.9             | -\$25            | 0.0             |             |
| Superfund                          | Homeland Security                     | \$2,166                     | 2.0             | \$2,166              | 2.0             | \$1,968                    | 2.0             | -\$198           | 0.0             |             |
|                                    | Human Health Risk Assessment          | \$3,404                     | 14.9            | \$3,404              | 14.9            | \$3,342                    | 14.9            | -\$62            | 0.0             |             |
|                                    | Research: Sustainability              | \$73                        | 0.0             | \$73                 | 0.0             | \$0                        | 0.0             | -\$73            | 0.0             |             |
|                                    | Research: Land Protection             | \$21,191                    | 93.1            | \$21,191             | 93.1            | \$17,706                   | 89.5            | -\$3,485         | -3.6            |             |
|                                    | <b>Superfund Appropriation Total</b>  |                             | <b>\$26,834</b> | <b>110.0</b>         | <b>\$26,834</b> | <b>110.0</b>               | <b>\$23,016</b> | <b>106.4</b>     | <b>-\$3,818</b> | <b>-3.6</b> |
| <b>GRAND TOTAL</b>                 |                                       | <b>\$596,726</b>            | <b>1911.3</b>   | <b>\$594,726</b>     | <b>1911.3</b>   | <b>\$584,129</b>           | <b>1924.1</b>   | <b>-\$12,597</b> | <b>12.8</b>     |             |

**NOTES:**

<sup>1</sup>FY 2010 Enacted includes the \$2M supplemental for research to determine human health and environmental impacts of oil spill dispersants. Differences in totals between new and former program areas reflect transfers and cross-walk adjustments for workforce support costs.

<sup>2</sup>FY 2011 CR represents an annualized continuing resolution based on FY 2010 Enacted levels excluding supplemental appropriations.

<sup>3</sup>FY 2012 total for Research: Sustainable and Healthy Communities excludes \$0.5M in Agency green conferencing resources not included as part of the Office of Research and Development budget.

<sup>4</sup>FY 2012 resources for nanotechnology and other areas will now appear separately from the Human Health and Ecosystems research areas.