



**EPA and the Future of
Environmental Protection**

American University, Center for Environmental Policy

MOVING FORWARD: Future Directions for EPA and Environmental Protection

American University School of Public Affairs
Center for Environmental Policy

Project Report

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Disclaimer

The views expressed in this report are those of the author and do not necessarily represent those of American University, the U.S. Environmental Protection Agency, the EPA Alumni Association, or other institutions with which the author and contributors are or have been affiliated.

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EXECUTIVE SUMMARY

The nation's environmental progress since the formation of the U.S. Environmental Protection Agency (EPA) nearly 50 years ago is remarkable by many measures, and the agency can point to a strong record of accomplishments.¹ Environmental and public health gains are increasingly difficult to achieve, however, and EPA's current "business model," in isolation, may be insufficient for tackling important present and emerging challenges and preserving historical gains. Past environmental improvements have been achieved largely through regulatory actions to set standards, issue permits, and hold dischargers responsible for compliance, as mandated by existing laws. New challenges, including climate change, are different from earlier challenges, and call for augmenting traditional programs with new approaches that engage states/tribes, industry, non-governmental organizations, communities and other stakeholders more actively than at present.

This conclusion emerges from a unique partnership formed in 2018 between American University's Center for Environmental Policy (CEP) and the EPA Alumni Association (EPA AA) to identify our greatest environmental challenges and to suggest "future directions" for EPA. The partnership recognized that pressures on the environment will continue as worldwide population and economic growth drive greenhouse gas emissions, climate change and related impacts, intensive agricultural production, competition for water, reliance on chemicals, unsustainable land use and ecosystem destruction, urban concentration, and resource extraction. Informed by the partnership with EPA AA, CEP identified 6 key "future directions" to help EPA prepare for the challenges ahead:

- 1. Pursue State-of-Art Science Capability.** EPA's ability to lead in a future landscape involving many entities pursuing the goals of sustainability and environmental protection (in many different ways) starts with its own credibility and demands a solid foundation in state-of-the-art science.
- 2. Renew the U.S. "Environmental Protection Enterprise."** The integrated system of state/tribal and EPA programs -- the foundation for 50 years of environmental progress — must be renewed with fresh energy and shared governance, and be broadened to include a role for nongovernmental organizations, industry, local government, and others who can bring resources, expertise, and ideas.
- 3. Strengthen International Cooperation.** EPA and its partners (old and new) should embrace international cooperation as part of the future environmental protection enterprise because climate change and other complex challenges call for a worldwide response, and the benefits of exchanging technical expertise accrue globally.
- 4. Harness Markets and Consumer Choice in Concert with Regulations.** EPA should accelerate the use of market approaches that are already proven, such as regional cap-and-trade systems, and give the public/consumers information on the sustainability of products and processes. In many cases market approaches can achieve more than regulations alone.
- 5. Advance a Forward-Looking Regulatory System.** Regulations will remain critical for meeting future challenges, but should be designed to embrace technological innovation and the best new models for achieving outcomes and rewarding sustainability.
- 6. Engage the Public to Raise Awareness About the Environment.** Public confidence in EPA and support for its mission are critical. EPA and partners need to redouble efforts to engage the public — both to listen and to educate — about critical public health and environmental threats and clearly communicate necessary actions.

¹ See EPA AA's report, "Protecting the Environment, A Half Century of Progress: <https://www.epaalumni.org/hcp/>

Progress in protecting the environment and public health for many years has been slowed by polarized debate. The future directions identified in this report should help strengthen public confidence in EPA, and offer a path forward that emphasizes EPA's role in bringing together and leading the work of many actors to protect the environment and public health.

Project Background

American University's Center for Environmental Policy (CEP) in 2018 formed a partnership with the EPA Alumni Association (EPA AA) to identify the greatest challenges facing the Environmental Protection Agency (EPA) and to suggest "future directions" to help EPA prepare to meet those challenges.

The project encompassed these five components:

- 1. EPA and the Future of Environmental Protection** (conference), held April 23-24, 2019 at American University (co-sponsored by the Environmental Law Institute and the Hanley Family Foundation).
- 2. Five Focus Group Reports** written by members of EPA AA in Summer 2018.
- 3. EPA Alumni Association Members Survey Report**, prepared by CEP based on a survey of EPA AA members in November 2018.
- 4. Modernizing Environmental Protection: A Brief History of Lessons Learned**, written by several EPA alumni and EPA staff in cooperation with CEP.
- 5. "A Future Inspired by the Past"** (video) featuring William Ruckelshaus, EPA's first and fifth administrator, shown at AU's conference, "EPA and the Future of Environmental Protection," on April 23, 2019.

More information and project documents are located at: <https://american.edu/spa/cep/>

While this project provides suggestions for building the EPA of the future, it is only a beginning, and it focuses primarily on EPA's *institutional capacity*, not specific policy proposals. This focus is based on the belief that a strong and vibrant EPA will be needed in the future as society grapples with critical issues such as community resiliency and environmental justice, and seeks solutions for national and worldwide threats to public health and the environment (led by climate change and its impacts, loss of biological diversity, water quality/supply, widespread presence of toxins, and others). An active dialogue is needed around those and other issues to build consensus for policy responses. In the end, however, sound policies are only as effective as the institutions responsible for implementation. This report is intended to help guide the work of building EPA's capacity to lead a 21st century model of environmental protection, and to build the public support EPA needs to continue to perform its historical leadership role.

II. INTRODUCTION

Nearly 50 years ago, on April 22, 1970, an estimated 20 million Americans celebrated the nation's first Earth Day. Shortly thereafter, President Nixon sent "Reorganization Plan No.3" to Congress outlining the formation of a new "Environmental Protection Agency" comprised largely of several disparate programs from other federal agencies. There were many obstacles in the way of success for the new agency. The agency lacked essential authorities, a central structure, and staff experienced in environmental protection. The agency had creative energy and ambition on its side, however, and perhaps more importantly, a clear and unambiguous vision of a clean and

safe environment that captured the spirit of public sentiment and enjoyed bipartisan support. Over time, EPA's leaders often advanced new priorities and shifted the emphasis of its activities, but EPA's core mission of protecting human health and the environment always was and remains a touchstone that energizes the agency's work.

Over the decades, working with its partners, EPA grew to become an essential institution for protecting the environment and public health, and by most measures the nation has made remarkable progress. Our air and water are cleaner, and most significant sources of contamination are controlled. Even more remarkable, these improvements were achieved over a period in which the US population has risen 50 percent, and Gross Domestic Product has nearly quadrupled.²

The progress of the past decades belies the challenge ahead, however. Emissions of greenhouse gases and other recently recognized problems loom large. Strong and visible public support that has propelled the agency for years has become unreliable and fractured.

EPA's 50th anniversary in 2020 presents an opportunity to consider how EPA and its partners might adapt to meet the challenges of the future. While it may be difficult to duplicate the excitement of EPA's first years, a conversation today about EPA's future is every bit as important as it was 50 years ago. American University's project, "EPA and the Future of Environmental Protection," in partnership with the EPA Alumni Association (EPA AA), looks decades ahead -- past today's contentious issues, and past EPA's current

capacity and strengths/weaknesses -- to suggest directions that may form the basis for a broadly supported agenda to achieve the agency's essential mission. This report reflects information gleaned from AU's year-long partnership with the EPA AA and draws from all components of the project, including the reports of five focus groups formed by the EPA AA in the Summer of 2018, a survey of

I don't know of an agency that can point to more indisputable successes, progress, and achievements that you can breathe, that you can drink, that you can touch with your hands, than the Environmental Protection Agency. – William Reilly, former EPA Administrator, at American University on April 23, 2019

association members conducted in November 2018, discussions from the conference, "EPA and the Future of Environmental Protection," held April 23-24, 2019 at American University, and the paper, "Modernizing Environmental Protection: A Brief History of Lessons Learned," produced by several EPA alumni and EPA staff in cooperation with American University's Center for Environmental Policy.

III. OVERVIEW AND MAJOR THEMES

Historical Context

Prior to 1970, the responsibility for protecting public health and the environment rested almost entirely with state and local government. For the next 50 years, the environmental protection enterprise set in motion by federal legislation in the 1970's reflected a societal consensus to empower a unified federal-state partnership to protect the environment.

² Bureau of Economic Analysis GDP data, and US Census Bureau population data

Despite the tremendous achievements made possible by our current model of protection, progress is slowing – largely the consequence of changes in the economy and the nature of remaining and new environmental threats including, but not limited to, climate change. There is also a growing recognition that significant future gains using traditional regulatory tools may be difficult to achieve.³ The agency’s “business model,” which has served so effectively since EPA’s early years, has not fully adapted to greater capabilities among states/tribes and other organizations, changes in the economy, new technologies, and the complexities of new threats to human health and the environment. We now face the challenge of how to redefine the protection narrative and facilitate a transformation to a widely supported 21st century model for environmental protection.

Major Environmental Challenges of the Future

What are the most important future challenges? The challenges identified under this project can be grouped under two related concepts: (1) threats to our physical environment and human health; and (2) “system” challenges, such as dated authorities and models of protection. These two challenges are inextricably linked. Future threats to the environment and human health, such as climate change, have features likely to confound traditional policy approaches. To effectively address environmental threats in the future, EPA and its partners must overcome some of the limitations of our traditional system of environmental protection, static legal authorities, and other obstacles.

³ The article, “Red Lights to Green Lights: From 20th Century Environmental Regulation to 21st Century Sustainability” in *Environmental Law Review*, 47(1) (2017), by Daniel C. Esty (Yale University) provides an overview of several studies on the costs and benefits of environmental regulation.

Climate change is overwhelmingly viewed by respondents to the survey of EPA alumni⁴ as the most important environmental challenge. Resiliency is an important component of this challenge. Increasingly, EPA and other federal agencies, states/tribes, and cities will need to work together to defend against the impacts of a changing climate (such as severe weather) on critical infrastructure, including water systems and chemical/waste facilities. Members of EPA AA’s Focus Group #1 also identified sustainable management of water, energy and material resources, and the protection of biological diversity and ecosystems as overarching future challenges. Overarching “system” challenges identified by the group include elevating public understanding of environmental issues, building and maintaining excellent scientific capability at EPA, and re-visioning EPA’s role among the many institutions and actors involved in environmental protection. See EPA AA Focus Group #1 report for a full description of future challenges.⁵

Many of the major future environmental threats are driven by underlying forces that will not yield to traditional management and control strategies in isolation. While some adverse effects of human activity can be mitigated by regulation, others will require responses outside EPA’s purview, such as land use management. The overarching challenges of climate change, sustainable management of water, energy and material resources, and the protection of biological diversity and ecosystems will require the integration of a range of policy responses working in concert to achieve environmental protection goals.

⁴ Report on Survey Results, EPA AA, April 2019: <https://www.american.edu/spa/cep/future-directions/index.cfm>; and at Appendix 3

⁵ Focus Group #1 Report, EPA AA, 2018 : <https://www.epaalumni.org/userdata/pdf/FG1.pdf>

Climate change illustrates the point. Widely regarded as the most pressing environmental problem now and in the future,⁶ emissions of greenhouse gases are already causing deleterious impacts. Climate change is driven largely by forces beyond traditional EPA responses: the sources of emissions are global; widely dispersed; and to a large degree the consequence of modern lifestyles and the production of food and goods demanded by an expanding world population. Other major environmental challenges share some of these complexities and cannot be adequately addressed through regulatory approaches alone.

...climate change...clean energy...feeding 9 billion people...transporting people...none of those issues falls neatly in the EPA purview. And yet, I think if the EPA doesn't play a strong role, those issues might not be solved. —Linda Fisher, former EPA Deputy Administrator, at American University, April 23, 2019

Moving Beyond Regulatory Approaches

When EPA was created, early public support for the agency was galvanized around enforcement against egregious symbols of pollution – there were “good guys” and “bad guys.” EPA’s model for action was to establish expectations by setting standards, issuing permits, providing technical assistance, and taking enforcement actions to compel compliance. Over time, the same model of environmental protection was carried forward by states and some tribes as they assumed lead authority for federal programs. The approach worked, and our “current state” of environmental protection can be largely attributed to the success of this model.

⁶Ibid.

SURVEY OF EPA ALUMNI ASSOCIATION MEMBERS

The survey of EPA AA conducted in Summer 2018 provides a rich set of data reflecting the views of 381 former EPA employees with approximately 8,426 years of cumulative experience. Key takeaways of the survey:

- 1. Climate change is far and away the most important environmental challenge of the future.** Other important challenges are water resource management, energy sustainability, and protection of biodiversity and ecosystems;
- 2. An "all of the above" approach is needed for climate change, including incentives, partnerships, and mandates.** An "Apollo moon shot" to decarbonize our economy is needed;
- 3. Scientific excellence is a critical foundation for EPA's actions and future role, especially science directed toward anticipating threats, developing tools and solving problems;**
- 4. Public awareness and consumer information are powerful forces for moving industry toward sustainability, yet regulations will still be needed to deal with poor performers;**
- 5. Strengthening the essential EPA-state/tribal relationship is critical, but there are no simple solutions.** EPA must continue an active oversight role, with more emphasis on technical assistance;
- 6. Public understanding and engagement on environmental issues are critically important for tackling future challenges.** EPA must use new tools to reach broader audiences with credible information on science, solutions/policies, and progress;
- 7. EPA's historical strengths in regulation, science, and technology provide a sturdy foundation for the future, but EPA should improve its ability to adopt new approaches and form new partnerships;**
- 8. Clarity of mission, motivated staff, scientific excellence, and openness to new approaches are essential ingredients of a successful future EPA.**

(Appendix 3 contains more detail on survey results.)

The EPA Administrator is far more than a regulator and should see himself or herself as a major source of information, of encouragement, at times of inspiration, for the public at large. -- William Reilly, former EPA Administrator, at American University on April 23, 2019

EPA's traditional regulatory approaches will continue to remain relevant and necessary. Regulatory approaches, along with technical assistance, serve as an essential backbone for communicating expectations, stimulating technology, encouraging sustainability and waste reduction, addressing "bad actors," and helping to assess environmental conditions and progress. Regulatory stability provides the predictability needed for private markets and investment decisions.

EPA can play a leadership role in finding innovative solutions...one of the great success stories of EPA and the statutes it has administered is the technology forcing features of the permitting programs that would always be shooting for best technologies. -- George Hawkins, former Director of DC Water, at American University on April 23, 2019

While new approaches are suggested for dealing with future challenges, nothing in this report should be interpreted as an argument against building upon the existing regulatory framework that has served so well over the history of EPA, although existing regulations certainly can be improved based on new science and advances in control technologies, among other things. Greater success in the future, however, will require broad-based efforts beyond regulation, including voluntary

approaches with measurable results that fully engage industry, the public, cities and towns, and many other organizations. While maintaining a forward-looking regulatory system is essential, future challenges will require responses from EPA that move beyond the traditional regulatory and enforcement role.

Voluntary solutions won't work...unless there are strong environmental safeguards in place. That's why BP and EDF are aligned in an agreement about the need for strong federal methane regulations. We need those to create the space to figure out what's next in the oil and gas industry, what's next in the clean energy transition. -- Tom Murray, Environmental Defense Fund, at American University on April 23, 2019

Importance of Institutional Capacity

There is a broad range of potential policy responses to address environmental challenges of the future, each associated with innumerable variables such as costs, effectiveness, and public acceptance. A premise of this project is that the public will demand a clean and safe environment in the future, and EPA is an essential institution for achieving that goal. With that backdrop, this project focused principally on suggestions for building and maintaining EPA's *institutional capacity* for meeting future challenges *no matter the specific policy responses* that may be adopted.

...the first thing you have to do is strengthen the agency itself. Get the agency stronger as a foundation. -- Gina McCarthy, former EPA Administrator, at American University on April 23, 2019

Strategic institutional investments (including investments in partnerships with states/tribes and others) are the key to the agency's success in meeting future environmental challenges. Returning to climate change, for example, the sources of greenhouse gas emissions and their effects are well researched. Potential policy responses may include cap and trade schemes, a carbon tax, strict technology standards, energy conservation, alternative energy development or a combination of these and other strategies. No matter the policy approaches selected, EPA must be capable of, among other things, providing expert policy analysis for decision makers, measuring/monitoring outcomes and progress, educating the public, supporting collaborative efforts with other lead agencies (e.g., Department of Energy, Internal Revenue Service), and providing technical assistance to partners.

EPA will not be working alone in all these roles, but it certainly needs credibility and expertise to guide decision making and set priorities. It certainly needs credibility and expertise to effectively lead.

Policies to address other serious remaining threats (other than climate change) will likewise require the coordination of effort among many actors around environmental goals. Issues such as plastics and pharmaceuticals in aquatic ecosystems, protection of habitat and biological diversity, nutrients in water, and community resiliency share an important feature with respect to policy design: EPA will have an important role, but the solutions will require coordinated action on many levels by many actors.

Few of these problems are squarely within the four corners of EPA's current authority, yet any foreseeable policy alternatives will likely need EPA expertise. To design future policies,

coordinate the work of others, and effectively communicate to the public – to *lead* other institutions and society toward a clean environment -- EPA must strategically invest in institutional capabilities. Recognizing that specific policy responses will be designed one-by-one, sometimes over the course of many years, our goal is to provide suggestions that will help EPA serve as a credible institution capable of guiding the development and implementation of those responses.

...we need to find new ways to deal with systemic issues. And you're not going to deal with these issues in the way that we've dealt with some of the problems in the past.-- Bob Perciasepe, former EPA Deputy Administrator, at American University, April 23, 2019

Revitalizing EPA's Entrepreneurial Spirit

In addition to adequate funding and commitment to strategic priorities, the agency needs foremost an *investment in leadership attention* to the task of preparing EPA for the future. Future agency leaders must clearly communicate a compelling long term vision for the agency, and challenge employees to provide ideas and approaches for achieving that vision. Leaders need an "all hands on deck" mentality characterized by active

Yes, we've made some progress, But now we are facing a new set of challenges that require a whole new set of individuals to be playing not just a role sitting at the table, but actually framing out what this new future is going to look like. -- Mustafa Ali, National Wildlife Federation, at American University on April 23, 2019

internal messaging, employee engagement, integration of key milestones into the agency's performance management structure, and engagement of partners and stakeholders on the agency's direction.

The agency should reinvigorate a climate of continuous learning, where innovation is encouraged, and strive to become more nimble in adapting to change and using new tools. A full range of suggested management/performance themes are described in EPA AA Focus Group #5's report, "Tools, Processes, Culture and Resources" found at the link: (<https://www.epaalumni.org/userdata/pdf/FG51.pdf>).

... in building an Agency for the future, effort must be made to develop a more nimble culture, responsive to technological change. – EPA AA Focus Group #5

While striving to employ new ideas, future leaders also should examine what has worked in the past and revive promising ideas no matter the "era" or administration in which it was tried. Lessons learned from EPA innovation efforts can be reviewed in the paper, "Modernizing Environmental Protection, a Brief History of Lessons Learned," developed as part of this project.⁷ The agency should seek to capitalize on the agency's latent entrepreneurial spirit with an eye on key themes for building the EPA of the future.

Public Support and Confidence in EPA

The need for public confidence in EPA and support for its mission was among major themes arising from this project. While generic

⁷ See Modernizing Environmental Protection: A Brief History and Lessons Learned, April 2019 : <https://www.american.edu/spa/cep/future->

I think (EPA) gets played as being lots of things that we're not. And I think we need to figure out how to communicate better. I think that the agency overall is only in the news about what we're demanding. Not what we're doing. -- Gina McCarthy former EPA Administrator at American University on April 23, 2019

polling data on general environmental themes indicates fairly stable public support for environmental protection over several decades, EPA's efforts to advance stronger environmental controls are often slowed or stymied by controversy and political opposition. Many EPA alumni have expressed concern that EPA has "lost" some of the public support it once had, or the intensity of support needed at the political level to advance a progressive environmental agenda. Many of the agency's strongest supporters are dismayed over public disparagement of EPA's scientific findings and they sense that attacks on the agency have damaged the agency's image and weakened the agency's ability to do its job.

While objective data suggest only a modest decline in overall public support for environ-

The news doesn't demarcate exactly what's news and what's opinion. Especially on the issue of climate and climate change. It does a very bad job at both informing people about the fact that climate change is real and the fact that it's not actually a scientific debate.—Vann Newkirk, The Atlantic, at American University on April 23, 2019

[directions/upload/Moderizing-Environmental-Protection-A-Brief-History-of-Lessons-Learned-1.pdf](https://www.american.edu/spa/cep/future-directions/upload/Moderizing-Environmental-Protection-A-Brief-History-of-Lessons-Learned-1.pdf)

mental protection,⁸ there is a perception of growing polarization around specific policy proposals and a widening disconnect between the public's general support for environmental protection and political "backing" for action.

A range of theories have been offered about how and why some negative messages about EPA may have taken hold. Among them, perhaps the public has become too compla-

One thing EPA really needs is a first rate communication program. If the public doesn't understand what you're doing, why you're doing it, and what the benefit is for them...they're not going to support what is in their own self-interest. – William Ruckelshaus, former EPA Administrator at American University (video) on April 23, 2019

cent about today's less obvious environmental threats compared to the egregious and obvious pollution that EPA tackled in its early years. Or perhaps scientific opinion holds less sway at a time when skepticism of traditional news outlets and experts seems on the rise. For whatever reason, some polling data suggests that the public is less worried about the environment now than in the past.⁹

Another reason may be that "regulation" itself has developed a negative connotation, especially if people believe the environment is already clean, or that regulations are excessive or unnecessary. The narrative that regulation is inherently harmful to the economy (and indicative of federal "overreach") is employed in political campaigns to rally support from voters opposed to "big government."

⁸ An examination of Gallup Poll data and public support for the environment can be found in Focus Group #2's report, The Environmental Protection

Almost everything that EPA does comes down to protecting the public's health and well-being. That's a good story. I would really like EPA's story to be America's other public health agency... You've got to turn it around with a really powerful story. -- Edward Maibach, George Mason University, at American University on April 23, 2019

Finally, there is a sense that EPA itself has not forcefully defended its actions, clearly articulated the benefits (especially health benefits) of its policies, adequately engage industry, states/tribes, and stakeholders, or sufficiently insulated science from political considerations.

Whether EPA's public image has slipped or not, and no matter the cause, strong public support and confidence in EPA is seen as critical to the agency's future success, and an issue that needs to be addressed.

Statutory Change – What is Essential, and When?

Any conversation about the future of EPA and environmental protection gives rise to the

As EPA looks ahead, it is an opportune moment to ask whether a more selective organic statute might provide certain benefits, for example, in standardizing enforcement authorities across statutes that now contain a great diversity of authorities, obligations and limitations. Such an approach could...select those areas where a coordinated approach across the agency would be most beneficial. —EPA AA Report of Focus Group #5.

Enterprise and EPA's Role, pages 9-12:
<https://www.epaalumni.org/userdata/pdf/FG2.pdf>
⁹ Ibid

question of whether EPA needs new statutory authority. The short answer, based on the information produced under this project, is "yes." But for what? What is essential, when is it needed, and how might the same goals be achieved under current law?

Respondents to the survey of EPA AA members clearly indicated that new federal authority to deal with climate change is essential and urgent. (Over 95% of EPA AA members surveyed supported some form of climate change legislation.¹⁰) Such authority needs to galvanize expertise and resources across the government with a sense of urgency unprecedented in the history of environmental protection policy. In some cases, including possibly within EPA, special organizational divisions may need to be created and charged with meeting statutory mandates. In addition to some form of regulation as part of new authorities, this report identifies other "investments" in EPA's capacity to address climate change, such as new partnerships, and technical assistance.

Other statutory changes would help strengthen EPA in the future, although nothing is as urgent as climate change legislation. An "organic" statute is often suggested as a way to promote more holistic approaches. Another related suggestion is elevating EPA to cabinet status. Both may present advantages over current law, but such legislation has failed to gain traction in the past due to polarization over the direction of the agency, and the risk that opening a legislative debate could lead to "weakening" protections already achieved under existing authorities. In the near term, a legislative effort to fully integrate mature

programs is not the highest priority and would inevitably cause some distraction from more immediate issues.

A more promising near-term endeavor would be to selectively integrate certain activities at the agency – such as standardizing enforcement authorities. Over time, as consensus emerges around new approaches and EPA builds greater trust with states/tribes and stakeholders, comprehensive statutory reforms could accelerate progress and ease EPA's transition to a desired future state, just as an organic statute could have helped EPA in its early years.

Finally, there was general agreement by participants in this project for infrastructure investments to address climate change resiliency, and also to address long-deferred national investments in water supply and wastewater systems. Infrastructure investments and community resiliency, especially among underserved communities, have potential as unifying legislative themes, even in the absence of broader consensus on EPA's future directions.

IV. FUTURE DIRECTIONS

To realize a future vision for EPA, the agency must work with stakeholders to achieve consensus around future directions for the agency, followed by key investments that support those directions. ("Investment" is used broadly here – not only investment of money, but also a commitment of time and energy of agency leaders). The "future directions" suggested below help illustrate a vision for the EPA of the future. The accompanying "key

¹⁰ Report on Survey Results, EPA AA, April 2019 : <https://www.american.edu/spa/cep/future-directions/index.cfm>

investments” are building blocks for progress toward that vision.

1. Pursue State-of-Art Science Capability

EPA’s calling card in the future will be scientific expertise. Fortunately, the importance of scientific credibility has long been recognized at the agency. Variations on the theme of “good science,” or “sound science,” have been among EPA’s strategic priorities for decades, and a top priority for some administrators. It will remain an even more important cultural value as EPA prepares itself for new roles across the spectrum of future challenges.

EPA’s image, and ultimately, its ability to lead collaborations and establish partnerships will depend foremost on the credibility of its science. The agency’s scientific credibility may have suffered along with the overall image of the agency, as discussed above. But its credibility within the scientific community remains strong, and the most vocal criticism of EPA’s science is introduced in the context of political and policy debates. The agency still employs many top experts and still attracts top talent. There is growing concern, however, over EPA’s ability to keep pace with scientific developments and ability to adapt to a rapidly changing science, technology and information (STI) landscape. EPA AA’s Focus Group #4¹¹ examined how effectively EPA identifies priority challenges and makes adjustments, and how well it coordinates its scientific work internally and with others. The authors saw these as key challenges for maintaining scientific credibility and serving as a future leader in environmental protection.

What are some of those priority scientific challenges? Developing climate change solu-

tions and responding to its impacts are the most urgent. In addition to working with other organizations to study the causes and effects of climate change, EPA has an important role in finding solutions – particularly among sectors for which EPA has an existing nexus among its authorities. EPA is uniquely positioned to inform decisionmakers on climate change solutions (mitigation and adaptation), and that should remain an emphasis of EPA’s climate research. EPA needs to invest more in modelling and monitoring sources of green-house gas emissions, researching climate and air quality impacts on sensitive populations and disadvantaged communities, and analyzing the effectiveness of potential policy alternatives.

Science is enormously valuable to us as a constancy. As something that must continue to underpin everything (and) give validity to what we do and say. It's vitally important...we have to stay with it and stay with it very rigorously. – William Reilly, former EPA Administrator at American University on April 23, 2019

In addition to climate change, EPA must prepare for a range of environmental challenges that increasingly involve complex interactions among multiple stressors, and challenges arising from a changing economy (and consumption patterns) that present new questions over possible sources of exposures and potential harm. Among growing threats, for instance, is the use of biological processes in production systems, and the proliferation of pharmaceuticals and plastics in the environment. Even as EPA works to address such problems, some legacy challenges are still with

¹¹ Focus Group #4 Report, EPA AA, 2018 : <https://www.epaalumni.org/userdata/pdf/FG4.pdf>

us, such as understanding the ecological impacts of nutrients.¹²

Future Directions for Science

Suggested future directions can be grouped under three themes: (1) improve EPA’s capacity to anticipate future scientific challenges; (2) prepare to manage rapidly expanding data from many sources; and (3) reestablish technical assistance as a core mission function.

Among the top priorities is EPA’s ability to systematically anticipate and adapt to change. EPA will need more robust approaches for data gathering, ability to combine datasets, and ability to synthesize information across disciplines. “System-level” tools to analyze life-cycle scenarios, cumulative risk assessment, and the integration of social, behavioral, and economic information are not current strengths of EPA and have no functional home within the agency. A “systems” view will require much stronger interdisciplinary coordination, and a stronger connection to other centers of expertise, including other federal agencies engaged in protecting the environment. A dedicated and structured process for “looking around the corner” and anticipating scientific information and tools necessary for addressing (and avoiding) future environmental threats will be needed if EPA is to lead in decision making and designing solutions.

EPA must also prepare itself to manage rapidly expanding data. Increasingly affordable sensing technology and other sources of information on environmental releases/conditions will allow the public to access and publish environmental data. Private industry too will have high resolution data on processes, origin/sourcing and supply chains. Information on inputs, production processes, waste

generation and emissions, and all manner of environment-related data will be become readily available to industry, governments, citizens and NGOs.

In the beginning, EPA owned the science, and we owned the information. Today, because of the internet, information is in the public hands. And science is in the public's hands. -- Linda Fisher, former EPA Deputy Administrator, at American University on April 23, 2019

Ordinary consumers will be able to track what is in their air, water, food and consumer products. Citizens and NGO’s will have access to various streams of information that heretofore had been the province of government regulatory agencies. The challenge for EPA is to stay abreast of technological developments and techniques for managing an explosion of data, master the technology, and devise strategies to guide these developments in useful and responsible directions.¹³

“Citizen science” presents a related challenge for managing data, and an important opportunity. Citizens with low cost apps may have access to real-time information on environ-

Our children are already fully cognizant of the threats. We need to step up as adults and make sure that they’re as aware of the solutions. Nothing happens unless people have hope, and too much of the climate dialogue has been fostering hopelessness. — Denis Hayes, Founder of Earth Day Network, at American University, April 23, 2019

¹² Ibid

¹³ Ibid

mental conditions, the ability to transmit environmental data, and a window into the environmental performance of local facilities. EPA has an opportunity to shape how citizen science evolves in the environmental protection realm – and for guiding it toward producing information that is valuable and translates into sound policies.

The growing interest in citizen science provides EPA an opportunity to develop stronger networks in communities and meaningfully engage the public in EPA’s mission. Failure to do so will result not only in a missed opportunity, but will force EPA into a reactive (or resistant) stance when presented with information from many directions, some of which may be of unknown/unassessed quality or utility.

Excerpt from Focus Group #4’s vision statement:

“Transparency and clear communications will build understanding and confidence and a sense of teamwork rather than adversarial conflict. EPA will be recognized as a provider of environmental solutions, with the imposition of regulatory obligations and enforcement actions the failsafe mechanism that assures protection...” -- EPA AA

Report of Focus Group #4

Re-establishing technical assistance as a core mission function is another key science-related theme for future directions. EPA has traditionally been a source of valuable technical assistance, perhaps with greater attention in its early years than now. In a future characterized by rapid developments in science, technology and information (STI) however, EPA needs a revitalized, conscious and sustained effort to ele-

vate technical assistance. Technical assistance translates EPA’s scientific knowledge into the market place, into communities, and into the hands of organizations (public and private) with an interest in environmental progress. Coupled with credible scientific capabilities, an elevated program for delivering strategic technical assistance empowers partners and supports collaborative problem-solving. EPA’s ability to deliver technical assistance is critical for a future where EPA is leading and mobilizing the efforts of many actors toward achieving environment and public health goals.

Key Investments for Science

* Establish a permanent, rigorous, and robust process for scanning emerging issues involving states/tribes and other partners, industry, and other stakeholders. To support this activity, EPA should champion and participate in the creation of a comprehensive environmental monitoring system.

* Develop computational resources to support widespread use of monitoring, forecasting and modeling tools in EPA, capitalize on tools such as artificial intelligence (AI), and assure these resources are available to partners and the public to the greatest extent possible.

* Actively engage external organizations and experts to set up a framework for processing and using new/expanded sources of data. This framework should facilitate the development of future standards and guidelines for transforming new sources of data into information-oriented policy responses such as Safer Choice¹⁴ and innovative sustainability systems that are gaining traction in industry, government and the NGO community.

¹⁴ For more information on Safer Choice see : <https://www.epa.gov/saferchoice>

* Develop a unified strategy for the delivery of technical assistance that cuts across EPA’s existing organizational units. The strategy may require a new structure that includes centers of expertise across the nation, and must establish a conduit for two-way information flow between EPA’s scientists and the “hands on” practitioners working directly with partners and the public.

* Enhance EPA’s human resources in science, technology and information (STI), specifically build staff capacity across the agency in interdisciplinary and “systems” approaches, large-scale computing and information management, social science and science communication/technology transfer, in addition to traditional (and evolving) fields such as biological sciences, toxicology, and chemistry. The agency should deepen involvement of STI staff in EPA’s programmatic activities, and develop a culture of mission-oriented problem solving that connects science-to-technical assistance-to-outcomes.

* To lead EPA in meeting future challenges, the agency should formally empower a senior leader above the Assistant Administrator level who is accountable for coordinating science, technology and information functions, setting priorities, planning investments, incorporating external input/feedback into strategic planning, coordinating international science and technology engagement, and overseeing strategic development of EPA’s technical assistance delivery mechanisms.

2. Renew the U.S. “Environmental Protection Enterprise”

EPA’s relationship with states/tribes can be viewed as a continuum that started in the 1970’s when Congress established a statutory

framework that assigned EPA the job of setting national standards, and provided incentives and funding to encourage states to share the job of implementation. Respective roles were straight-forward at that time. EPA issued regulations and provided guidance to the states. EPA reviewed state authorities and state capabilities, and established the terms of “delegation” of authority to states (and some tribes) under EPA’s principal statutes. This original framework is the foundation of today’s U.S. environmental protection enterprise.

As states assumed more responsibilities and tribal capacity grew, the relationship became more complex. (EPA’s relationship with tribes differs in many ways from the relationship with states, but tribes are part of the enterprise and included in the discussion of Future Directions, below.) States/tribes expected greater discretion and independence, and EPA struggled with striking the right balance between a “level playing field” and state/tribal flexibility. As EPA’s grants decreased as a share of overall implementation costs, the relationship became more strained. EPA has introduced formal ways to provide more flexibility and stronger working relationships with states/tribes, most notably the National Environmen-

How do we bring people together so they can work together, and succeed together around major projects? I would argue the major projects that cities can really embrace and really drive forward are around the environment. – Anthony Williams, former Mayor of Washington DC, at American University on April 24, 2019

tal Performance Partnership system¹⁵ (which establishes a framework for individualized state/tribal agreements with EPA that recognize state/tribal priorities and provide flexibility in the use of federal funds), and the shared governance project E-Enterprise for the Environment.¹⁶ Even so challenges remain for the relationship.

We believe that it is a mistake to hold that a strong EPA requires weak states, or that strong states require a weak EPA. Effective environmental enforcement requires both strong states and a strong EPA. – EPA AA Report of Focus Group #5

Even while underlying stresses on the EPA-state/tribal relationship exist, the game has changed for all parties. The current model was established specifically for sharing the implementation of regulations issued at the federal level. Emerging environmental and public health challenges require innovations beyond the regulatory approaches that were at the heart of the original environmental protection enterprise. Equally significant, new players have entered the field, with new ideas, resources and tools.

The landscape for environmental protection has changed around *both* states/tribes and EPA. When the original environmental protection enterprise was set up, corporations didn't have environmental sustainability officers. Concepts like "smart growth" were not in our lexicon. Cities and towns didn't have environmental protection departments, let alone city-wide sustainability strategies. Citizens and

¹⁵ For more information on the National Environmental Performance Partnership System see: <https://www.epa.gov/ocir/national-environmental-performance-partnership-system-nepps>

NGO's didn't have nearly the access to information on local environmental conditions they have today. For many of the same reasons we need to build out beyond regulatory approaches, we must expand the traditional environmental protection enterprise.

Future Directions for Renewing the Environmental Protection Enterprise

Some elements of the longstanding tension between states/tribes and EPA will likely persist, along with a new mix of participants and environmental challenges. A renewed environmental protection enterprise must be firmly grounded in a highly transparent framework that embraces innovation and holistic approaches beyond regulation. The focus should be on problem-solving and outcomes (as opposed to programmatic measures).

States, tribes and EPA will remain at the center of the nation's future environmental protection enterprise. However, the enterprise should view itself as a broader endeavor, including participants who can bring resources, ideas, and solutions to the table. A stronger enterprise should start with a unified (or at least well-coordinated) voice among federal agencies that have a role – it requires

(EPA should) provide for more collaborative relationships and revise the allocation of responsibilities among all governmental partners, making best use of the key strengths of each, as a part of larger legislative efforts to modernize environmental statutes. – EPA AA Report of Focus Group #2

¹⁶ For information on E-Enterprise for the Environment see : <https://www.epa.gov/e-enterprise>

more than just EPA at the federal level.¹⁷ A structured role for the involvement of industry and NGOs should be explored, as well as cities and towns – many of which have a wealth of practical, real-world experience to inform decision making and program design.

The enterprise should recognize, encourage, and support multi-level partnerships to address local or regional priorities, such as the Chesapeake Bay Program partnership involving several federal agencies, nearly 40 state agencies, 1800 local governments and dozens of other organizations.

...the new tools for the EPA are to focus on regional collaborations of national significance and regional efforts...But you need some interstate multi-jurisdictional presence, a facilitator with stature, an interstate umpire to lay out the technologies (and bring) the facilitation skills and also be able to enforce...--

Ben Grumbles, Maryland Secretary of the Environment, at American University on April 23, 2019

The future environmental protection enterprise should contemplate federal-state-corporate agreements as well. Such agreements might, for example, provide public recognition or incentives for single-company or industry-wide sustainability efforts. Existing EPA examples such as WasteWise and WaterSense demonstrate the potential. Programs of this nature should be evaluated, and potentially expanded to other arenas. The future environmental protection enterprise should embrace opportunities for such market/price-

¹⁷ As an example of the range of federal agencies contributing to environmental protection, the Great Lakes Interagency Task Force, established under an Executive Order, involved 11 federal agencies.

based systems, and over time -- as regulations are updated, or new standards are considered -- EPA could lead collaborative engagement with states/tribes and other parties to further promote successful models, and to remove potential regulatory barriers to their adoption.

Key Investments for Renewing the Environmental Protection Enterprise

* EPA and states/tribes should reframe their relationship along the lines of “mutual task allocation and agenda-setting.”¹⁸ Shared governance models like E-Enterprise are the right direction and form a foundation for building interoperability among data systems and collaborative problem solving.

* The future environmental protection enterprise should work in concert with other future investments, particularly the aforementioned investments in state-of-art science. The central parties – states, tribes, and EPA – should establish mechanisms to evaluate emerging issues, anticipate potential policy responses, and identify roles and responsibilities that capitalize on the relative strength of all participants. The sharing of technical expertise and information up, down, and across all organizations should be an emphasis of the enterprise in the future to assure the rapid diffusion of new ideas and technologies.

* NGOs, industry, and existing partnership entities (such as regional compacts) need to be welcomed participants in proposing innovative, outcome-oriented solutions. The Chesapeake Bay and Great Lakes initiatives are successful models for water bodies and watersheds in other jurisdictions. Regional initiatives driving reductions in greenhouse gas

¹⁸For a full discussion on this and related concepts see EPA AA’s Focus Group #2 Report: <https://www.epaalumni.org/userdata/pdf/FG2.pdf>

emissions are also showing considerable progress. These collaborative efforts can benefit from a forward-looking regulatory system that serves as a focal point for bringing parties together for problem solving. The environmental protection enterprise of the future should move toward a mindset that views regulated entities as potential partners in solving problems.

Partnerships need to be developed with local governments (and) NGOs. You've got to figure out what's the most efficient way of protecting the environment, protecting public health. – Martha Rudolph, former President, Environmental Council of the States, at American University on April 24, 2019

* A focused effort is needed to actively involve local governments in the future environmental protection enterprise. Cities are increasingly taking the lead in addressing important challenges, including climate change. Local governments regulate (often operate) transportation systems, control waste disposal, and have access to tools (e.g., zoning, building codes) that can be used to address a range of environmental and public health challenges. The future environmental protection enterprise cannot afford to leave local government expertise on the sidelines in the search for innovative solutions.

3. Strengthen International Cooperation

EPA and its partners (old and new) need to think of international cooperation a part of the future environmental protection enterprise because important and complex future challenges can be addressed most effectively by a worldwide response. EPA should strive for greater involvement in international coopera-

Knowledge transfer in the broadest possible sense is what's desired and needed, and we have a lot to share, both in terms of governance mechanics, but also the technical dimensions to this work. —Scott Fulton, President of the Environmental Law Institute, at American University on April 24, 2019

tion by joining forces with U.S. agencies charged with negotiating treaties and trade agreements, and those engaged in technical exchange. EPA can help design policies, establish negotiating positions, set goals, and offer options for consensus. Equally important, EPA, states/tribes, and communities can benefit from the experiences of other countries, and from the exchange of ideas (and stronger relationships) across all levels of government.

Key Investments for International Cooperation

* Actively engage with the private sector to promote environmentally sensitive global production, packaging, transportation and other sustainability opportunities through supply chain and trade arrangements.

* Provide assistance through MOUs and/or personnel exchanges (among scientists, for example) and participate in international forums to build capacity related to model laws, tools, systems for monitoring/enforcement, and to promote information exchange.

* Examine international success stories and their applicability to domestic problems, and look for opportunities to learn from the experiences of other countries in solving new and emerging challenges.

*Facilitate collaboration between EPA partners, especially state/tribes and cities, with similar units of government in other countries

countries to share innovations, policy ideas, lessons learned, and successful training and tech transfer models. EPA should make this a priority through its work with the Department of State and international organizations.

When we take the knowledge, the innovation from abroad and apply it locally in the United States, we help (local environmental managers). They don't see international work as a distraction, they see it as a complement to their work. – Dale Medearis, Northern Virginia Regional Commission, at American University on April 24, 2019

4. Harness the Power of Consumer Choice and the Marketplace in Concert with Regulations

Consumer choice, corporate social responsibility, and market mechanisms are related concepts that have potential for positive environmental and public health outcomes that might be difficult to achieve using traditional regulatory approaches alone. Harnessing these forces presents an enormous opportunity.

EPA has historically made relatively modest investments in harnessing the marketplace to promote environmental and public health protection. One example is the Toxic Release Inventory. For over 30 years, the Toxic Release Inventory program has been an important program for providing the public with information about toxic chemical releases and pollution prevention activities. Not only can such programs provide public recognition for companies that go “above and beyond,” but businesses are keenly attuned to rising consumer awareness – especially what it means for their image among a young (and growing) segment of the population.

Future Directions for Market Approaches

The ease of information exchange and connectivity among people has already had profound effects on society and the economy – with a promising nexus to environmental protection. For instance, corporations are increasingly recognizing (and capitalizing on) consumer expectations for more information on the sustainability profile of goods and services they purchase, resulting in a proliferation of labels such as “organically produced” and “non-GMO verified.” EPA’s Safer Choice program, which uses a special label to help consumers, businesses, and purchasers find products that perform and are safer for human health and the environment, is built upon the same idea -- that consumer preferences can send market signals that benefit the environment and the “bottom line” of sustainability-focused companies. The investments identified below will help EPA maximize the potential of these approaches.

Many actors are involved. What we're seeing more and more is that the marketplace is demanding environmental protection in a way that public governance is not yielding. We're seeing not just public-private collaborations...but also private-private interactions...Walmart telling its supply chain around the world...reduce your carbon emissions. -- Michael Vandenberg, Vanderbilt University, at American University on April 23, 2019

Key Investments for Market Approaches

* EPA should identify opportunities for expanding or accelerating market approaches that are already proven, such as regional cap-and-trade systems, and take advantage of new technologies to do so. New technologies provide an opportunity to improve the admin-

tration of cap-and-trade, and to update the concept behind EPA's 33/50 program under TRI, which encourages voluntary industry wide toxic release reduction goals. New technologies can lower transaction costs, improve data quality, and provide greater transparency for such approaches.

* EPA's involvement in consumer choice initiatives could help accelerate a trend that is already underway in the private sector. The most visible current EPA models are Energy Star, WaterSense, and Safer Choice programs. It isn't necessary for EPA to come up with all the ideas for these types of programs – many organizations and industry groups are involved in such efforts. Over 450 “eco-labels” already exist, although many focus on single attributes of sustainability (such as “100% recycled content”). EPA should help identify gaps and overlaps in the marketplace, and over time advance consensus “multi-attribute” standards that are harmonized across organizations involved in promoting sustainable practices and consumer choice.

In the 1970's-to-1980's, the focus was on EPA. It was on laws and regulations. It was on lawsuits. The environmental community figured out that the marketplace can force industry to act faster and to act globally. And you started to see industry pay attention to their reputation...those were the seeds of the sustainability movement.-- Linda Fisher, former EPA Deputy Administrator, at American University on April 24, 2019

* EPA has issued Recommendations of Specifications, Standards, and Ecolabels for Federal Purchasing that recognize environmental performance among suppliers that exceeds standard industry practice.¹⁹ The use of such approaches for federal purchasing will send a powerful signal to markets and improve the competitive position of companies using sustainable practices. EPA should build upon this concept by reaching out and seeking voluntary commitments from other large purchasers, such as hospitality and retail chains, hospitals, state/local governments, universities, and housing authorities. Sustainable purchasing among institutions adds a powerful market force to encourage companies seeking to transition to sustainable practices/products.

* Sustainability is an established concept within the growing movement of corporate social responsibility reporting. New technologies can accelerate this trend by providing transparency on indirect environmental and sustainability impacts throughout an entire production supply chain, rather than focusing principally on end stage environmental releases (as under TRI). EPA's role in this arena works synergistically with the development of sustainability standards and the harmonization of existing standards. By actively engaging with partners, EPA could help accelerate a transition toward improved quality and rigor of organization-wide sustainability certification.

* Over time EPA should build toward a sustained, permanent capacity for this work – there will always be new products and services entering the marketplace, new technologies to promote sustainability, and changes in the economy and consumer demands. EPA's

¹⁹ EPA Environmentally Preferable Purchasing Program's Recommendations of Specifications,

Standards, and Ecolabels for Federal Purchasing (<http://www.epa.gov/greenerproducts>)

program needs to grow and adapt to an ever-changing market environment and new opportunities.

5. Advance a Forward-looking Regulatory System

As discussed in Section III, regulatory programs will continue to be a critical tool for advancing environment and public health protection by identifying priorities, driving technologies, and serving as a focal point for future collaborative efforts that are needed to organize the work of many actors around the goal of advancing environmental progress.

Future Directions for a Forward-looking Regulatory System

Maintaining a commitment to EPA's core regulatory function does not mean changes aren't needed in EPA's approach. Perhaps most importantly, EPA will need to place at the center of the rule making process robust engagement with states/tribes, other federal agencies, and the regulated community itself, and work together to define measures of success based on desired environmental and health outcomes (versus "process" outcomes).

Future regulations should anticipate rapid technological change, and be designed to incorporate continuously advancing means of monitoring and reporting, in part to reduce compliance burden, but also to maximize transparency and public accountability. Future rulemakings should engage regulated entities in identifying solutions to meet goals, and should recognize and encourage holistic approaches. EPA's Ann Arbor lab explores technological innovation and works to integrate best technologies into regulatory approaches – an approach that could be built upon and expanded. Finally, future regulations should help form a foundation that will facilitate (or at least not impede) innovative

approaches, including the development of future market-based solutions and other outcome-oriented approaches that will be necessary for achieving results "beyond regulation." Conceptually, EPA should maintain a vibrant regulatory system, but always seek opportunities to "build out" from that system in the development and implementation of future rules.

Key Investments for a Forward-looking Regulatory System

*EPA should strive for on-going engagement with regulated communities so that regulation development is viewed as just *one* feature of a more complex relationship. EPA and industry both tend to compartmentalize regulation and compliance activities versus public-private partnership activities. A less adversarial and open relationship in which EPA and industry work together on problem definition and solutions may help EPA gain access to information that wouldn't necessarily be volunteered in a strictly regulatory context.

* EPA has a great opportunity in the years ahead to reduce the overhead costs of regulations. Remaining manual reporting systems should be eliminated as soon as possible. EPA should foster a race to the future in remote sensing and compliance reporting by using the regulatory process for identifying and advancing the use of state-of-art technologies. Whenever new technologies make it possible, EPA should transition toward an *outcome-based* approach in future or updated regulations.

* Anticipate rapid technological change, and design regulatory responses capable of adopting and encouraging new tools/technologies, including those that promote transparency and accountability to the public.

*Market-based approaches may complement regulatory regimes. In some cases, successful market-based solutions could become the basis for changing regulatory priorities, or the basis for greater regulatory flexibility. Also, EPA should work to identify and remove regulatory barriers to market-based solutions.

* Integrate regulations and permitting across environmental media and explore sector-based approaches whenever possible. Identify and remove regulatory obstacles to innovation. EPA has made great progress on this front, but it should be a sustained, ambitious process of continuous improvement over time.

6. Engage the Public to Raise Awareness About the Environment.

Public confidence in EPA and support for its mission are critically important. EPA and partners need to redouble efforts to engage the public – both to listen and to educate – about critical public health and environmental threats, and clearly communicate necessary actions. This is especially important for a future in which the agency must increasingly lead and coordinate the work of many actors toward achieving environmental and sustainability goals.

Future Directions for Engaging the Public and Raising Public Awareness

While some of the forces affecting EPA's image and credibility are beyond its control, many actions can help improve the agency's image and influence. Partnering with regulated entities, investing in top-notch science, and recruiting talented staff, among many other actions discussed throughout this report, are suggestions from EPA AA's Focus Groups that should lead to improving EPA's effectiveness and contribute to building trust and public confidence. Project participants strongly urged that EPA work to serve as a source of unbiased

scientific information to inform public dialogue about environmental and public health risks, and the actions needed to meet future challenges. Project participants also suggested a model of public engagement that is highly integrated into EPA's "operating system," rather than an "add on" function rooted in an era before the internet. EPA can promote engagement from an environmentally conscious, networked generation and become more responsive to input for steering policy and making adjustments.

Key Investments for Engaging the Public

* Skill sets to lead collaborative efforts and communicate EPA actions should be developed within the Agency. Skilled communicators should be fully engaged throughout decision making processes, not brought in late in the game to fashion public messages and press releases.

* Throughout EPA's programmatic functions, the agency should incorporate, as appropriate, the use of social media and technology to improve agency transparency, share technical information, and inform the public about health and environmental risks.

* EPA needs a first rate communication function that serves as an unbiased source of information on environment and public health risks. While EPA must continue to communicate about EPA policies, proposals and other specific actions, the agency should also disseminate broader-themed messages about environmental threats, and the connection between environmental protection and public health.

* Through Regional Offices and close coordination with state/tribal partners, EPA's communications and community engagement efforts can be tailored more effectively to

reach diverse audiences and those with specific interests, particularly among underserved communities and sensitive populations (e.g., families with asthmatic children).

* EPA's emphasis on traditional news providers may not be helping to effectively reach key constituencies and diverse communities. EPA should examine opportunities to reach younger audiences, for example, by developing content for multi-media platforms, such as interactive maps, videos, educational games, and apps.

* Through partners with expertise in environmental education, EPA should identify and invest in tools and best practices for classroom instruction, and other educational pathways (e.g., online instruction, model experiments, use of hand held apps). Increased and sustained funding for environmental education should be a priority for EPA in the future.

* EPA should (in coordination with states/tribes) generate practical information at the community level about agency actions, particularly related to health effects and/or health risk reduction benefits of actions.

* Accountability to the public should be factored into all of EPA's programmatic work by developing and publicizing practical information on environmental quality and progress toward goals. New technologies for monitoring and reporting could enable tailoring information for local communities.

EPA ALUMNI ASSOCIATION PROJECT COMMITTEE, FOCUS GROUPS AND WEB LINKS

Project Committee:

Derry Allen (Co-Chair), Tom Voltaggio (Co-Chair), Penny Fenner-Crisp, Phyllis Flaherty, Mark Greenwood, Ed Hanley, Vic Kimm, Stan Laskowski, Stephen Weil, Chuck Elkins (support).

Project Website:

<https://www.epaalumni.com/epa-of-the-future>

Focus Groups:

- Focus Group #1: Future Environmental Challenges: Stan Laskowski (leader), Mike Cook, Walter DeRieux, Harlan Green, Alan Hecht, Jamie Heller, Vic Kimm, Roger Martella, Norine Noonan, Frank Princiotta, Michael Shapiro.
<https://www.epaalumni.org/userdata/pdf/FG1.pdf>
- Focus Group #2: The “Environmental Protection Enterprise” and EPA’s Role: Bob Perciasepe (leader), Joe Cascio, Adria Cooper, Walter DeRieux, Barbara Elkus, Bonnie Gitlin, Mark Greenwood, Bill Hirzy, Dale Medearis, Philip Metzger, Rob Wolcott, George Wyeth.
<https://www.epaalumni.org/userdata/pdf/FG2.pdf>
- Focus Group #3: EPA’s Relationship with States and Other Public and Private Actors: Dave Ullrich (leader), Mark Charles, Steve Chester, Kerrigan Clough, Ed Hanley, Judy Katz, Walt Kovalick, Maury Kruth, Stan Laskowski, Philip Metzger, William Muno, Armina Nolan, John Whitescarver.
<https://www.epaalumni.org/userdata/pdf/FG3.pdf>
- Focus Group #4: Science, Technology and Information: Penny Fenner-Crisp (leader), Dave Friedman, Ed Hanley, Barry Nussbaum, George Schewe, Rita Schoeny, Glenn Schweitzer, Mark Segal, Bill Sonntag, Steve Young.
<https://www.epaalumni.org/userdata/pdf/FG4.pdf>
- Focus Group #5: EPA Tools, Processes, Culture and Resources: Stan Meiburg (leader), Rob Brenner, Arden Calvert, Greg Fabian, Odelia Funke, Noha Gaber, Bill Hirzy, Joel Mintz, Bill Shapiro, Stephen Weil, George Wyeth.
<https://www.epaalumni.org/userdata/pdf/FG51.pdf>

CONFERENCE SPEAKERS AND PANELISTS

Conference on EPA and the Future of Environmental Protection

April 23-24, 2019

American University in partnership with the EPA Alumni Association, the Environmental Law Institute, and the Hanley Foundation hosted a 2-day conference to discuss EPA's role in meeting future environmental challenges. Conference speakers and panelists are listed below.

DAY 1 – APRIL 23, 2019

Welcome to American University. Sylvia Burwell, President of American University (AU) and William K. Reilly, Former Administrator, U.S. Environmental Protection Agency (EPA)

Opportunities for Working with Business

Leading companies increasingly see sustainability as key to their success and critical for meeting customer, employer, and investor expectations. How do we leverage growing corporate leadership and effective environmental safeguards to accelerate environmental protection “beyond compliance”?

Moderator: Michael Vandenberg, Vanderbilt University; former EPA Chief of Staff

Jim Nolan, Senior Director, Regulatory Affairs at BP

Katherine Neebe, Senior Director, ESG & Global Responsibility, Walmart

Marcus Peacock, COO, Business Roundtable; former EPA Deputy Administrator

Terry F. Yosie, former President and CEO, World Environment Center; former Director EPA Science Advisory Board

Tom Murray, Vice President, Environmental Defense Fund

Fostering Technologies for Environmental Protection

Technological progress is key for achieving environmental sustainability and maintaining economic vibrancy. How can EPA promote and use new technologies (advanced monitoring, big data, information & communication tools) to help protect the environment?

Moderator: George Hawkins, Former General Manager, DC Water

Barbara Bennett, Former President and COO, Vulcan Inc.; and former EPA CFO

Biju George, Executive Vice President, Operations and Engineering, DC Water

Kirsten Schroeder, Global Business Services Partner, IBM

Patrick K. Decker, President and CEO, Xylem Inc.

EPA: A Future Inspired by the Past (video) – William Ruckelshaus, EPA's first Administrator

The Challenges Ahead (Keynote) – Denis Hayes, Founder of Earth Day Network; President of the Bullitt Foundation

Lessons of Leadership, Navigating EPA's Future

A discussion on lessons learned from past successes in working with Congress and past administrations, and the political dynamics of promoting environment protection in the future.
Former EPA Administrators William Reilly, Carol Browner, and Gina McCarthy, moderated by Dan Fiorino, Director of the AU Center for Environmental Policy

Designing EPA for the Future

Future directions for building EPA's institutional capacity and designing new models of environmental protection to meet future challenges.

Moderator: Linda Fisher, Former EPA Deputy Administrator
Benjamin Grumbles, Secretary of the Department of the Environment, Maryland; former Assistant Administrator for Water, EPA
Bob Perciasepe, President, Center for Climate and Energy Solutions; former EPA Deputy Administrator
Don Welsh, Executive Director, Environmental Council of the States (ECOS); former EPA Regional Administrator (Region 3, Philadelphia)
Martha Rudolph, former Director of Environmental Programs, Colorado Department of Public Health and Environment; former President, Environmental Council of the States (ECOS)

Telling the Story of Environmental Protection

Communication experts discuss how to tell the story of environmental protection and communicate science information in ways that engage, inspire and empower diverse public audiences. How do we make environmental science and policy accessible, and translate public support into action?

Moderator: Maggie Burnette Stogner, Executive Director, AU Center for Environmental Filmmaking
Edward Maibach, Director of the Center for Climate Change Communication, George Mason University
Eliza Barclay, Science and Health Editor, Vox
Justine Calma, Environmental Justice and Health Reporter, Grist.org
Mustafa Ali, Vice President for Environmental Justice, Climate and Community Revitalization, and former Senior Advisor to the EPA Administrator
Vann Newkirk, Staff Writer, The Atlantic

DAY 2 – APRIL 24, 2019

The Evolving Relationship Between EPA and DOJ Environment and Natural Resources Division (ENRD) *Significant legal decisions shape the environmental policymaking landscape. What are the implications of the EPA-DOJ relationship for environmental policymaking in the future?*

Moderator: Andrew Mergen, Deputy Chief, Appellate Section, DOJ/ENRD
Lois Schiffer, former General Counsel for the National Oceanic and Atmospheric Administration; former Assistant Attorney General, DOJ/ENRD
Ronald J. Tenpas, Partner, Vinson & Elkins; former Assistant Attorney General, DOJ/ENRD
Stacey Mitchell, Partner, Akin Gump Strauss Hauer & Feld LLP; former EPA Deputy General Counsel; former Chief of the U.S. DOJ Environmental Crimes Section (ECS)

White House Coordination of Federal Environmental Policymaking

Federal agencies across the government have a role in environmental protection. Former senior officials discuss the White House's role in coordinating federal policymaking to address environmental challenges of the future.

Moderator: Bridget C.E. Dooling, Research Professor, GW Regulatory Studies Center

Aaron Szabo, Partner, CGCN Group; former Senior Counsel, CEQ

Brenda Mallory, Director and Senior Counsel for the Conservation Litigation Project; former General Counsel, White House Council on Environmental Quality (CEQ)

Howard Shelanski, Professor of Law, Georgetown University, and Partner, Davis Polk & Wardwell LLP; former Administrator, Office of Information and Regulatory Affairs

EPA on the International Stage

International information exchange is essential to solving major environmental problems. How can EPA more effectively engage in the future in international cooperation and exchange?

Moderator: David Hunter, Professor of Law, AU Washington College of Law

Dale Medearis, Senior Environmental Planner at Northern Virginia Regional Commission; former Co-Program Manager for Europe, EPA, Office of International Affairs.

Ruth Greenspan Bell, Public Policy Fellow, Environmental Change and Security Program, Woodrow Wilson International Center for Scholars

Scott Fulton, President, Environmental Law Institute; former EPA General Counsel

Timothy Epp, Acting Director, National FOIA Office; EPA Assistant General Counsel for International Law

EPA's Partnership with Cities

The EPA plays a leadership role in working with cities to protect the environment. EPA initiatives such as the Green Power Partnership and Greening American Cities support communities that protect the environment, economy, and public health.

Moderator: William J. Snape III, Assistant Dean of Adjunct Faculty Affairs and Fellow in Environmental Law, AU Washington College of Law

Anthony Williams, Mayor of Washington, DC from 1999-2007

Julie Lawson, Director of Mayor Muriel Bowser's Office of the Clean City

Karim D. Marshall, Senior Associate Director and Legal Advisor, East of the River Services

EPA's Interface with States and Tribes

Partnerships with states and tribes are central to EPA's environmental protection enterprise. How can this essential partnership be strengthened to meet future challenges in environmental protection?

Moderator: Bob Perciasepe, President, Center for Climate and Energy Solutions; former EPA Deputy Administrator

Cynthia R. Harris, Deputy Director of the Center for State, Tribal, and Local Environmental Programs, Environmental Law Institute

Lawrence S. Roberts, Counsel, Kilpatrick Townsend & Stockton; former Acting Assistant Secretary for Indian Affairs, U.S. Department of the Interior

Martha Rudolph, former Director of Environmental Programs, CO Department of Public Health and the Environment; former President, Environmental Council of the States

The Promise of Regional Collaboration: Case Study, Chesapeake Bay Program

Regional and local entities are increasingly taking the lead in tackling significant environmental challenges and achieving results. Leaders of regional initiatives will describe successful experiences and consider the role that the federal government can and should play in promoting such initiatives.

Moderator: Vicki Arroyo, Executive Director of the Georgetown Climate Center at Georgetown University Law Center

Benjamin Grumbles, Secretary of the Department of the Environment, Maryland; former EPA Assistant Administrator for Water

Ridgway Hall, Vice Chair, Chesapeake Legal Alliance; former Founding Partner, Crowell & Moring

Ike Irby, Policy Advisor for U.S. Senator Kamala D. Harris

Alison Prost, Maryland State Director, Chesapeake Bay Foundation

Workshop: Next Steps for Building the EPA of the Future

Next Steps for Building the EPA of the Future. Members of the EPA Alumni Association and conference participants will discuss follow-up activities on key themes and suggestions for encouraging national dialogue on future directions for EPA and environmental protection.

Co-Moderators: John Reeder, Executive in Residence at AU; and Derry Allen, EPA Alumnus

David Ullrich, former EPA Deputy Regional Administrator (Region 5, Chicago)

Scott Fulton, President, Environmental Law Institute

Stanley Meiburg, Director, Graduate Studies in Sustainability, Wake Forest University; former EPA Acting Deputy Administrator

KEY TAKE-AWAYS

SURVEY OF THE EPA ALUMNI ASSOCIATION MEMBERS

A survey was sent by email to 1,550 members of the EPA Alumni Association in November 2018. Of these, 871 emails were opened, and 381 surveys were filled out for a response rate of 24.5 percent.



381

ANSWER
THE SURVEY

871

READ
THE EMAIL

1,550

CONTACTED
BY EMAIL

1

Climate change is far and away viewed as the most important environmental challenge of the future.

When asked to select four top challenges from a list of 8 future environmental challenges, climate change was ranked the most serious challenge. Other important challenges are water resource management energy sustainability, and protection of biodiversity and ecosystems.

MOST SERIOUS ENVIRONMENTAL CHALLENGES



82.1
PERCENT

311 VOTES
CLIMATE
CHANGE



63.9
PERCENT

242 VOTES
WATER
RESOURCES
MANAGEMENT



59.6
PERCENT

226 VOTES
ENERGY-
RELATED
IMPACTS



49.3
PERCENT

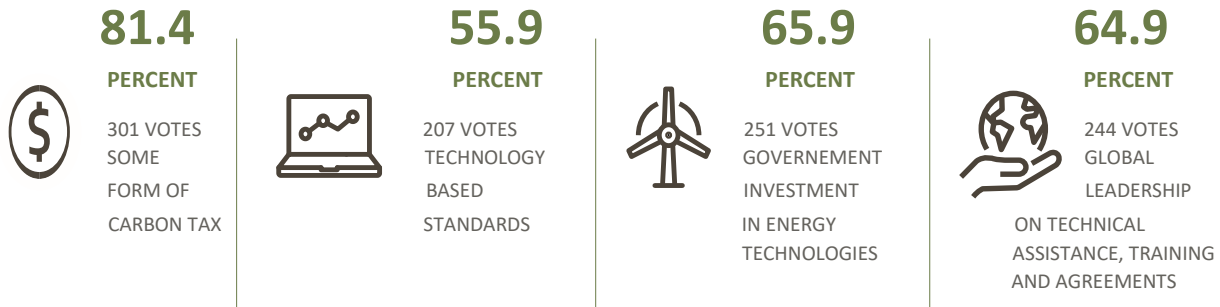
187 VOTES
BIODIVERSITY
AND ECOSYSTEMS
PROTECTION

2

An “all of the above” approach for climate change is strongly supported, including incentives, partnerships, and mandates.

In written comments, EPA alumni expressed concern about climate change and supported a broad range of potential responses. They called for a sense of urgency. One respondent wrote that “An ‘Apollo Moonshot’ to decarbonize our economy is needed.” Another wrote that: “Fifty years from now, EPA will be judged by how well it pivoted to recognize implications of [greenhouse gases]...for human health and the environment ... we should be asking the question, ‘What do we need to do to move in that direction ASAP?’”

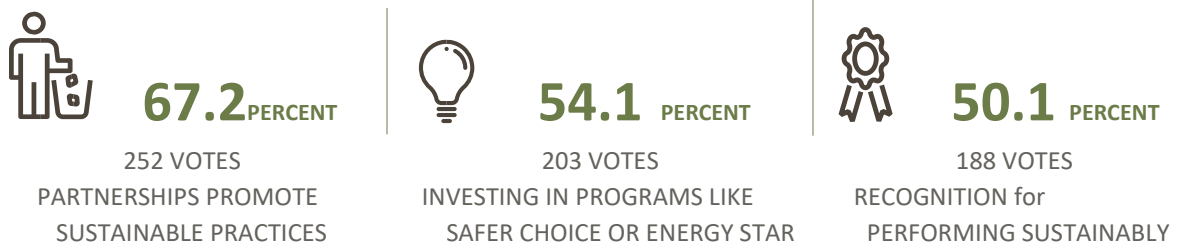
CLIMATE CHANGE POLICIES



3 EPA alumni see science as a critical foundation for EPA’s actions and future role, especially science directed toward developing tools and solving problems. *“Nothing is more important than a solid foundation of peer-reviewed science on which to set all regulatory actions and even proactive innovative approaches.”* -- Survey Respondent

4 Public awareness and consumer information are powerful sources for moving industry toward sustainability, yet regulations will still be needed to deal with poor performers. *“Increased transparency, expanding right-to-know, and encouraging voluntary actions are critical. These support actions ‘beyond compliance.’”* — Survey respondent

PROMOTING SUSTAINABILITY



5

Strengthening the essential EPA-state relationship is critical, but how remains a challenge. There are no simple solutions.

Most respondents favored moving in the direction of cooperative strategic planning and joint prioritization. The suggestion of “certifying state/tribal-wide programs, with periodic audits or reviews” and “expansion of EPA’s current Performance Partnership system” were supported by 69.4 percent and 70.4 percent of respondents. Many alumni said EPA must continue an active oversight role, with more emphasis on technical assistance.

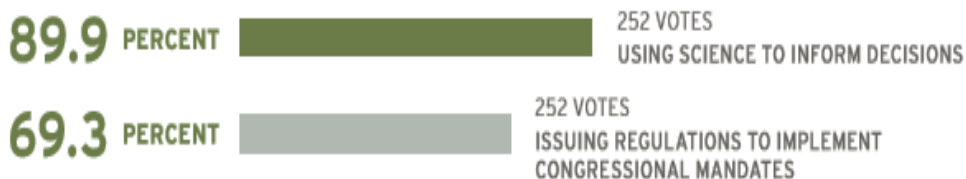
6

Public understanding and engagement on environmental issues is critically important for tackling future challenges. EPA must use new tools to reach broader audiences with credible information on science, solutions/policies, and progress. “Far too many people think that we have already solved the environmental problems and that little else needs to be done...” — Survey respondent

7

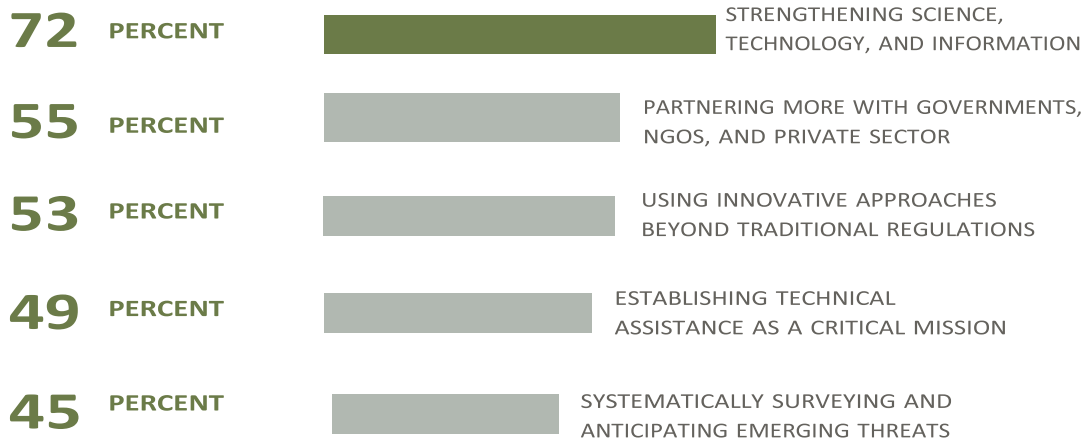
EPA’s historical strengths in regulation, science, and technology provide a sturdy foundation for the future, but EPA should improve its ability to adopt new approaches and form partnerships.

EPA HISTORICAL STRENGTHS



PROMISING DIRECTIONS FOR EPA

Rated “Strongly Agree” by Survey Respondents



8

Clarity of mission, motivated staff, scientific excellence, and openness to new approaches are essential ingredients of a successful future EPA. Other topics frequently mentioned include promoting education/public relations, stakeholder communication, and working at the local level with communities.

INTEREST IN WORKING FOR EPA

Rated “very important” by Survey Respondents

