Rotarians understand that the whole world is their backyard. They can see the effects of climate change in communities they care about, and they haven’t waited to take action. They’re tackling the problem the way they always do: coming up with projects, using their connections to change policy — and planning for the future.
WHY CLIMATE CHANGE IS ROTARY'S BUSINESS
Let's Start the Conversation

Eighty percent of the land in the Bahamas is less than 5 feet above sea level. Which means that, if oceans rise at the rate scientists are projecting, the hilltop home on New Providence Island owned by Rotary International President Barry Rassin may someday be reclassified as beachfront property. “I look at my own country — climate change is almost personal,” he says. “My country is going to be gone if we do nothing.”

The environment isn’t one of Rotary’s six areas of focus, but it’s deeply intertwined with each of them. Senior staff writer Diana Schoberg sat down with Rassin to talk about why and how Rotarians should put the welfare of the planet on their agendas.

**The Rotarian:** Why should Rotarians care about climate change?

**Barry Rassin:** We’re people who care about our world. We want our world to be a better place, and it’s not just about the six specific areas of focus. It’s broader than that. We have to look at the world as a whole and how we can make it a better place. If we’re losing countries due to sea level changes, if stronger storms are disrupting water supplies or destroying people’s livelihoods, that’s more people who are going to be disadvantaged. So caring about the environment goes toward our ultimate mission, and we should give it the importance it deserves. As a humanitarian organization, we’re obligated to talk about it. We need to have the conversation.

**TR:** What kind of feedback do you get from Rotarians when you give speeches about climate change?

**Rassin:** There’s a lot of positive response. About 95 percent of the people I’ve spoken with say it’s about time that Rotary talks about the environment. They say it’s about time that The Rotary Foundation Trustees look at helping us understand where the environment fits into the six areas of focus. People have been waiting a long time for this. We plant trees, but we don’t really have the larger conversation.

**TR:** What do you say to the other 5 percent?

**Rassin:** I’ve had one very negative letter telling me that I was doing a great job until I mentioned climate change. Well, the writer said “global warming,” but I’ve never used those words, so he reinterpreted what I said. But for me, climate change is something we have to talk about.
“Climate change could destroy the livelihoods of millions of people and create much greater migratory pressures than we see today.”

FRANCESCO MENONNA
ROTARY SCHOLAR
Menonna graduated from the Johns Hopkins School of Advanced International Studies in Washington, D.C., in 2014. He works as a senior power and renewables analyst at Fitch Solutions in New York City, where he focuses on electricity markets and renewable energy in emerging and developed economies.

What do you struggle with most as a professional working to combat climate change?
I inform businesses and investors about the opportunities that clean energy creates. My biggest challenge is the lack of urgency many people feel in relation to climate change, since they are often removed from its most negative effects.

What potential solutions give you hope?
There is an exciting trend of innovation and technical advancement in the field of clean energy, especially in how we store electricity and how we make our electricity systems more efficient and intelligent. This is fostering advancements in the electrification of transportation, which will be key in reducing the impact of cars on climate change. The spread of clean energy and electric mobility is going to accelerate over the coming decades, and this makes me hopeful about the future.

TR: What kind of language do you use when you talk about climate change? Are there ideas that Rotarians can rally around?

RASSIN: I talk about the environment. People don’t have a problem with that language. I talk about the seas rising, and they don’t have a problem with that language. I don’t use the words “global warming.” It’s the only thing people get up in arms about; they say there’s no such thing.

I don’t make judgments. I just say the facts, that things are changing: 2017 was a devastating year for hurricanes. These things are happening. Call it what you want, but we need to look at the environment and we need to talk about it.

With polio, people say, “OK, that’s just health care.” But when you start talking about the environment, people ask if it’s political. I’m not talking politics; I’m talking about our world and how to make it a better place. We’re in a position where, with all the people Rotary has around the world, we can make a difference.

TR: Why is Rotary uniquely able to have an impact?

RASSIN: Our strengths are that we’re in 200-some countries and geographical areas around the world, and our members are people who are connected to the right people. You look at our polio eradication program: It’s successful not because we’ve provided vaccines. It’s because Rotarians were able to talk to the right people, to give the right support, to do the right thing. If we did that with the environment, governments would listen to us.

TR: What else can Rotarians do?

RASSIN: I’ve been asking Rotarians: What can you do in your region? In the Bahamas, for example, we can plant mangroves to make our coastlines more resilient to stronger storms. After I gave a speech about the environment in the Netherlands, I received an email telling me that if we need any help in the Bahamas, they’re experts, and they can come and help us.

There are a whole lot of Rotarians who want to do something, but they aren’t sure what to do. I think that’s part of the dilemma. Rotarians are very solution-driven. If we know a village doesn’t have water, we could bring them fresh water. We know how to do it, and we do it well. But climate change is a complex challenge. How do we find a complex solution?

TR: Is this Rotary’s moment to make a difference in climate change?

RASSIN: I think this is Rotary’s moment to start the conversation. I don’t think we’re going to get much further than that at this point in time. One of our challenges as an organization is how complex we are and how much we do. Therefore, to get everybody rallied around something, you’ve got to focus. It probably will take a Rotary president who’s going to make this the No. 1 focus. That will make a difference, and the world will rally around it. But if Rotary is going to be relevant, then we’ve got to be looking at the environment. ■
For more than 2,000 years, the Yupik people have hunted and fished in the icy wilds of Alaska’s western coast, digging holes through the frozen sea to catch salmon and stickleback and communicating to one another in an ancient lexicon that includes dozens of ways to describe ice. Passed down from generation to generation, this linguistic adaptation has helped the Yupik to navigate safely as hunters, using specific terminology to describe the ice’s thickness and reliability. But with the advance of climate change, common Yupik words such as tagneghneq — used to describe dark, dense ice — are becoming obsolete as Alaska’s melting permafrost turns the once solid landscape into a mushy, sodden waste.

Recent scientific data confirm that the Arctic is warming twice as fast as any other place on the planet, with the average winter temperature having risen 6.3 degrees Celsius over the past 50 years. Alaska’s soaring temperatures are caused by a perfect storm of confluence. When solar radiation hits snow and ice, most of it is reflected back into space. But as warming global temperatures encourage ice to melt, the exposed land absorbs the radiation, prompting yet more ice to melt. Now the people of Alaska — 85 percent of whom live along the coast — are among the first Americans to feel the effects of climate change as the ground beneath them melts and gives way.

Life in Alaska is defined by the cold, by the land, and by the people’s relationship to the sea. To fish and to hunt is to live and breathe, and the rapid melting of the ice is causing many indigenous Alaskans to question their cultural identity. Nobody knows this better than the people of Alaska.

Mary Robinson was president of Ireland from 1990 to 1997 and was a United Nations special envoy for climate change.

Los ing Ground

(IS THERE HOPE FOR INDIGENOUS ALASKANS FACING A ‘DISASTROUS SITUATION’?)
crisis more viscerally than Patricia Cochran, who has been working with communities across Alaska and the Arctic for 30 years to help them deal with the ravages of climate change. Cochran is executive director of the Alaska Native Science Commission, but she is also a native Alaskan and Inupiat, born and raised in the coastal town of Nome. Cochran grew up in a traditional Inupiat home, setting out across the tundra for fish camp every year and scrambling along the rocky coast with her siblings in the late-summer months, foraging for berries and herbs.

“It has taken science a very long time to catch up to what our communities have been saying for decades,” says Cochran. “For at least the last 40 or 50 years, our communities have noticed the subtlest of changes happening in the environment around them. We were seeing the signs of climate change long before researchers and scientists started using those words. Climate change is more than just a discussion for us. It is a reality. It is something that we live with and face every single day — and have for decades.”

As a child growing up in Nome, Cochran remembers the snow lying thick on the ground most of the year, and the sea — a single block of ice — stretching far toward the horizon late into the summer months. The winters were long and brutal, the summers exceedingly brief.

But over time, the winters began to arrive later and to rush prematurely into spring. Now, when Cochran visits her childhood home, the vast expanse of ice is gone, replaced by an open, glistening sea. “We have had to build a seawall in Nome because the sea ice that used to sit in front of our villages is no longer there,” she says. “That ice used to keep us safe. We have had so much rain that our fish will not dry on our fish racks. We have had such warm weather throughout the summer that berries have ripened twice in the season. Most worrying, the changing ice conditions have caused extreme erosion, flooding, and permafrost degradation across the entire community.”

Permafrost, the permanently frozen sublayer of soil that has anchored Alaska for thousands of years, provides a foundation for homes, schools, and roads, and it keeps the rising sea at bay. But mounting temperatures throughout the Arctic are causing this prehistoric underpinning to melt, turning the soil soggy and releasing more carbon dioxide into the air. As the cycle continues and the warming earth buckles and bends, the houses of Alaska’s indigenous people topple into the sea. As the dwindling permafrost exposes the soil and the offshore ice that normally buffers the villages from storms decreases, the sea advances, eating away at the land. In the late summer, increasingly fierce storms, the results of climatic shifts, batter the coast, eroding the topsoil until it crumbles into the sea.

Combining scientific expertise with her innate traditional knowledge, Cochran works to help communities across Alaska that are relocating. For years, the tiny village of Shishmaref, located on a barrier island 5 miles from the Alaskan mainland north of the Bering Strait, has been steadily yielding its shores — and buildings — to the frigid sea. When residents voted in August 2016 to leave their land, it was estimated they would need about $200 million to relocate homes and infrastructure to the new site and to build new roads, utilities, schools, and a barge landing. It is a staggering amount

“I am a climate optimist, but it’s up to us to act fast — to stop burning fossil fuels right now and start transitioning to clean energy.”

SAHAR MANSOOR
ROTARY SCHOLAR

Mansoor, who earned a master’s in environmental policy from the University of Cambridge in England in 2014, worked as a researcher at the World Health Organization in Geneva and as a policy analyst for the Selco Foundation, which focuses on sustainable energy solutions. She is the founder and CEO of Bare Necessities, an enterprise that produces and sells zero-waste personal-care and home products.

What do you struggle with most as a professional working to combat climate change?
We live in such a politically divided world. Having worked at WHO during the Ebola outbreak, I witnessed the power of unity when countries get together to meet a goal. Unfortunately, there is no strong consensus on environmental issues, which stalls meaningful action to combat climate change.

Do you believe humankind will be able to stop climate change?
Based on the best scientific evidence available to date, we have less than 12 years to mobilize a complete conversion from fossil fuels to green energy, or we risk dangerously destabilizing Earth’s climate.
“My biggest fear is that climate change will bring more poverty into the world.”

ALEJANDRA RUEDA-ZARATE
ROTYR PEACE FELLOW

Rueda-Zarate studied energy and resources as a 2008-10 peace fellow at the University of California, Berkeley. She founded a strategic thinking initiative in Colombia called NES Naturaleza (NES stands for nature, energy, and society). Its goal is to balance environmental, social, and economic forces by working with farmers to improve sustainable practices in agribusiness.

What do you struggle with most as a professional working to combat climate change?

I work with small-, medium-, and large-scale farmers in Latin America and encourage them to embrace sustainable agriculture. One of the biggest issues I face is persuading farmers to switch from traditional practices to more responsible ones. However, once they become aware of the risks and future challenges, many are willing to switch.

Do you believe humankind will be able to stop climate change?

I don’t think we can stop it, but I believe we can mitigate it and adapt to it by using better practices.

What potential solutions give you hope?

The multiple possibilities of recycling; renewable fuels, such as those made from plants instead of petrochemicals; and smart agriculture.

for a community of just under 600 residents, against which the state has offered merely $8 million.

About 400 miles south, the even smaller village of Newtok has been sliding toward the Ninglick River for years by up to 70 feet a year. Residents decided to trade their coastal land for a more secure swath on a nearby island, at an estimated cost of $130 million. While villagers plan their new homes and infrastructure, they still need to live where they are, maintain their daily rhythms, keep their children in school, and continue their ancient way of life. “For communities who have been there for thousands of years, it’s a difficult decision to leave everything,” says Cochran. “It’s not only the physical exhaustion, but the mental exhaustion and trauma that come along with all those things.”

Cochran is redoubling her efforts on what she and her organization can do to help indigenous Alaskans with community-based initiatives, research, and action. She frames climate change as a human rights issue, expanding the dialogue beyond emissions and mitigation to incorporate the language of justice and humanity. As a self-professed “elder in training,” she encourages young people to take part in her climate-justice journey, so that they too can learn the tools to live a sustainable life in their native communities.

“I see that as my most important responsibility and honor,” Cochran says, “to pass on that information and knowledge to the young people who must live with the disastrous situation that we have left them in.” Across the one- or two-room schools that dot the vast Alaskan coastline, new climate programs are being introduced to teach young children the myriad ways to talk about the weather — and to describe snow and ice — in their native languages. It is a way to keep endangered words such as *tagneghneq* alive, and to help those children navigate a safer future.

While she works to help indigenous people affected by climate change, Cochran takes inspiration from one of her own elders, her beloved mother, who passed away some years ago at the age of 96. As a child, Cochran’s mother watched as a flu epidemic wiped out her entire family except for her father. Bereft and traumatized, she was removed from her village when she was eight and sent to a boarding school, where she would remain until she was 18. “She lost her language, she lost her culture,” says Cochran, who remembers her mother as an eternal optimist and an indomitable spirit. “She fought the rest of her life to make sure that her eight children had what it would take to survive.”

Keeping her mother in mind gives Cochran the focus that she needs — and it helps imbue her message with hope. Knowing about her mother’s experience “really makes me understand that we can deal with anything,” she says. “We have always been resilient, adaptive, creative, amazing people, which has helped see us through the darkest of times in the past. That resilience, that spirit, will help us in the times yet to come.”

Marshall Saunders’ life would make a thrilling movie. A Texas native, he enjoyed a successful career as a real estate broker. But prior to that, he worked as a smokejumper in the Pacific Northwest and did a stint in the U.S. Navy. That was when, on a mission to Haiti, he saw extreme poverty for the first time.

Saunders later delved into the life and works of Gandhi, learning about persistence, respect for others, and what he describes as “the absence of force.” As he explains it: “Force is something that, in the long run, just doesn’t work. As soon as you defeat somebody, you’ve made an enemy. Truth and nonviolence: satyagraha. That’s the fastest way there is to accomplish something. I learned that from Gandhi — though Rotary had an influence on that too.”

Those lessons have allowed Saunders to make progress on a seemingly intractable issue: climate change. “What he’s been able to accomplish is amazing,” says Scott Leckman, governor of District 5420 (Utah), who has known Saunders for years. “He’s one of the great souls of the planet.”

In the final weeks of 2018, a bill aimed at reducing greenhouse gas emissions was introduced in the U.S. House. Its chief sponsor, Florida Democrat Ted Deutch, had been calling attention to the threat that rising sea levels posed to his state.

The bill represented a decadelong effort to craft legislation that addressed climate change with the backing of both Democrats and Republicans; other sponsors included Francis Rooney and Brian Fitzpatrick, Republican representatives from Florida and Pennsylvania, respectively. At an event two weeks before Christmas, Rep. John Delaney, then a three-term Democrat from Maryland and another of the bill’s co-sponsors, stood up to salute some “pragmatic idealists” for their help in advancing the legislation.

The Citizens’ Climate Lobby, Delaney said, was “the most effective and enjoyable group of people that I’ve dealt with since I’ve been on the Hill.” He lauded its members for their optimism, their work ethic, their positive attitude, their sense of common purpose, and their zeal. “I wish we could somehow map your DNA and upload it into all the other important issues that we actually have as a country right now,” he said.

The man behind the CCL? Marshall Saunders.

Saunders joined the Rotary Club of Coronado, California, in 1985. Although he left in 2000 for personal reasons, the Rotary ethos remains central to his mission and methods. Saunders and Leckman met when Saunders was promoting microfinancing in Mexico and Central America. Working with Rotary clubs there and in the United States, he established small banks in villages that then extended microloans to enterprising locals. (The Rotarian chronicled his work in June 1994.)

In 2006, Saunders went to see Al Gore’s film An Inconvenient Truth, which documented the threat of climate change. “I thought, ‘Holy socks!'” Saunders recalls. “A week later I went back to see it a second time, and it was ‘holly socks!' all over again. I saw it a third time with friends — which made three times in 10 days.”

Saunders — who had devoted so much of his energy and wealth to humanitarian work — was shocked into action. “There was a real danger of all our good deeds going for naught,” Leckman says.
When Saunders learned that Gore was training people to give the slideshow that anchored the film, he says, “I raised hell until they chose me.” He emerged from the three-day training session with a commitment to give 10 talks a year. “I started calling Rotary clubs — who else?” Saunders says. “I knew clubs all around the district. Soon I was giving one presentation a week.”

He augmented his Rotary club appearances with talks at schools, churches, and other venues. At a Rancho Bernardo retirement community, two women confronted him with a pointed query: “What should we do?”

The first meeting of what would become the CCL took place in San Diego in October 2007. Twenty-nine people showed up and agreed to meet with the U.S. representatives in five Southern California congressional districts to discuss climate change. But Saunders had a novel method in mind: He told the group, “Until you can find something about your representatives to appreciate, don’t go see them.”

As the organization honed its signature approach to lobbying — focused, optimistic, appreciative, upright, and nonpartisan — Saunders turned to an old friend, Mark Reynolds, and explained his plan to create a cadre of volunteers to lobby Congress. Reynolds was skeptical: “You want to combine climate and Congress, two of the most screwed-up things there are? That sounded like the dumbest idea I’d ever heard in my life.”

Saunders persisted. Reynolds, worried about the future his three children faced — and how they might one day blame their old man for not stepping up — took a leave from his job leading productivity seminars at Fortune 500 companies. “I figured I’d give this thing six
months, and after that I could go back to my regular job with a clear conscience, knowing I had done my part.”

In March 2009, Saunders and Reynolds made their first trip to Washington, D.C., to push for legislation that would address climate change. They were joined by Danny Richter, a doctoral candidate at the Scripps Institution of Oceanography at the University of California, San Diego. “Our first day on the Hill was absolutely terrible,” Reynolds recalls. “Everywhere we went, it was, ‘Thanks for coming; don’t ever darken our door again.’”

The three men returned the next day — “I knew it couldn’t be any worse,” Reynolds says — only this time, rather than overtly lobbying, they made it their goal to find common ground with the congressional aides they encountered. The strategy worked. “That day, all our meetings were amazing,” Saunders remembers. “And that scared me. I realized this might actually work.”

When he returned home, Reynolds let his employers know he would not be returning to his job. Today he’s the executive director of the CCL. Richter, meanwhile — having earned his PhD, conducted scientific research on seven continents, and logged five years as a CCL volunteer — is the organization’s vice president of government affairs.

As the number of volunteers grew, Saunders had to figure out exactly what kind of legislation they were lobbying for. The organization had experimented with several strategies — advocating for stringent tailpipe emissions standards, cap and trade, energy-efficient building codes — when he got a call from Tom Stokes, an environmentalist who was preparing to brief members of Congress on something called carbon fee and dividend.

Saunders attended the briefing, which featured a panel of climate change heavyweights, including James Hansen, whose studies of atmospheric conditions on Venus led him to become one of the first scientists to document the rise of temperatures on Earth. (Today Hansen sits on the CCL’s advisory board.)

Carbon fee and dividend — the basis for the Energy Innovation and Carbon Dividend Act introduced in Congress late last year — is relatively simple to explain: It envisions a fee of $15 per metric ton of greenhouse gas that would be generated by fossil fuels; the fee would increase by $10 every year, and it would be imposed, to use the CCL phrase, “upstream.” That is, it would be collected from companies that produce or import fossil fuel as near as possible to the point where the fuel entered the economy — for instance, at an oil well, mine, or port.

The collected fees would be deposited into a fund that would pay monthly dividends to U.S. households, thus helping to offset the increased costs people would encounter at the gas pump and elsewhere. (The CCL estimates that about 60 percent of households would receive more in dividends than they would pay in higher prices.) The net result, according to the House bill, would “encourage market-driven innovation of clean energy technologies and ... reduce harmful pollution.”

“For the first time I felt as if I’d found a solution that was a match for the problem,” Saunders says.

Having embraced carbon fee and dividend, the CCL focused on persuading others to support that solution. Its volunteers wrote thousands of letters to the editor and hundreds of op-ed pieces, as well as tens of thousands of letters to politicians and policymakers. In conferences “We are utterly dependent on the delicate interlocking web of life, and climate change will make it difficult for humans to thrive.”

GABRIELA FLEURY
ROTARY SCHOLAR
Fleury completed a master’s degree in conservation biology at the University of Cape Town, South Africa, in 2016. She focused on human-wildlife conflict mitigation with the Cheetah Conservation Fund in Namibia and now works for the Virginia-based Rainforest Trust.

What do you struggle with most as a professional working to combat climate change?
Climate change is theoretical to many people, and its effects take time to manifest themselves. This makes it hard to express the direct impact that climate change is having on our world, but it’s essential that people understand this impact to make the changes that are needed.

What potential solutions give you hope?
My organization, the Rainforest Trust, has safeguarded 19,654,506 acres of rainforest in the last 30 years, working with more than 75 partners all over the world. That proves there are many people who recognize the importance of conserving areas like rainforests to lessen the effects of climate change.
“We need radical changes to the way we consume and produce, as well as enormous investment and political buy-in. This is not happening fast enough.”

SALLIE LACY
ROTARY PEACE FELLOW
After her 2006-07 Rotary Peace Fellowship at the University of Queensland in Brisbane, Australia, Lacy worked on climate protection for developing countries at GIZ, the German government’s international development arm. She is now based in Switzerland, where she works at the consulting firm EBP, advising public- and private-sector clients on issues related to climate change.

Do you believe humankind will be able to stop climate change?
I believe some countries will adapt better than others, but I also believe the Earth is like a life raft, and you cannot keep just part of the life raft afloat. Solutions need to be for everyone.

What potential solutions give you hope?
I am hopeful when I see advances in the spread of renewable energy, the phasing out of coal in many places, as well as the significant efforts that are happening in the world’s cities to reduce emissions and adapt to climate change. Technology will play an important role in offering solutions, but we should not expect technology to fix everything. A big part of the solution is changing business-as-usual practices; making investments in resilient, low-carbon infrastructure; and changing consumer habits.

twice a year, members visit and thoughtfully engage with legislators and their aides on Capitol Hill. Last June, 1,348 CCL volunteers held 512 such meetings — and in November, they returned to the Hill for the second conference, with feedback and information keyed specifically to what they had heard on their earlier visit.

In late December, Democratic and Republican members of the U.S. Senate introduced their own version of the Energy Innovation and Carbon Dividend Act, capping off what Saunders calls “a remarkable year.” Politicians on both sides of the aisle were finally finding a common ground from which to confront climate change.

Today the CCL has more than 500 chapters and over 120,000 volunteers, some of the most effective of whom joined after they heard Saunders talk at Rotary clubs. “Those are the people I want to connect with,” he says. “You find really good people in Rotary clubs.”

One of those Rotarians is Peter Garrett, a Nigerian-born, Johns Hopkins-educated hydrogeologist and the president-elect of the Rotary Club of Waterville, Maine. “Our kids are going to have to pay for this,” he says. “I know Rotary stays out of politics. But climate change is not a political subject. Like rainfall, it falls on the good and the bad alike. So it would befit Rotary to get involved in this thing that affects the entire world.”

Garrett, who coordinates CCL efforts in Maine, urges his fellow Rotarians to use The Four-Way Test to scrutinize climate change issues. Is climate change true? he asks. As far as he’s concerned, scientists have erased any doubt as to its existence and potential impact. Is it fair? Absolutely not, he says, especially “if you live on a low-lying island or in an African country susceptible to drought, or if you’re a lobsterman whose livelihood is threatened because the water is too warm.” Resolve those problems, he says, and goodwill, better friendships, and beneficial outcomes will naturally follow.

Another CCL volunteer is retired Wall Street financier and risk manager Grant Couch, who splits his time between Florida and Colorado, where he’s a member of the Rotary Club of Boulder. A fiscal conservative with an allegiance to neither political party, he says the group’s message resonated with him. “But what really touched my heart was their method,” he says. “They don’t see enemies anywhere. I was ready to jump in, hands and feet.”

As he became more involved with the CCL, Couch co-founded a conservative caucus within the organization and worked to get more conservatives involved. “I also teach my progressive brothers and sisters how to talk with conservatives,” he explains — and he keeps a sharp eye on CCL messaging to ensure it’s nonpartisan. “Like Rotary,” he says, the CCL “needs to be apolitical. That’s the only way we can ensure a shared conversation.”

Karen Kendrick-Hands, a CCL volunteer and a member of the Rotary Club of Madison, Wisconsin, is a co-founder and past chair of the Environmental Sustainability Rotarian Action Group. Kendrick-Hands was Rotary’s first observer to the UN Intergovernmental Panel on Climate Change, held in Poland in December to coincide with the Katowice Climate Change Conference, which finalized rules for the implementation of the Paris Agreement.

“People want to talk about solutions,” she says. “If we don’t get climate change right, it doesn’t matter what we do in our six areas of focus.”

Photo: Kamil Petran

Rotarians are doers. Show them a problem and they look for solutions. But a global problem such as climate change might seem daunting to even the most resourceful Rotary member.

Break that complex problem down into smaller pieces, however, and you find there are many things Rotarians can do — and are already doing, with help from The Rotary Foundation.

A coalition of researchers and scientists led by environmentalist and writer Paul Hawken mathematically modeled the climatic and economic impact of potential solutions to learn which ones would yield the best results for people and the planet. The list, compiled in a 2017 book called *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*, included some surprising possibilities, such as educating girls, promoting family planning, and assisting farmers. As it happens, all of those align with Rotary’s areas of focus.

*Drawdown* researchers ranked solutions from 1 to 80 based on their potential to avert or reduce greenhouse gas emissions. We looked at those rankings alongside global grant projects to see how Rotarians are already helping to fight climate change.

Find more information at drawdown.org.
In lower-income countries, the Drawdown authors write, 214 million women who want more control over their pregnancies lack access to contraception, which leads to about 74 million unintended pregnancies each year. Giving women the health care they want and need also benefits the planet, reducing population growth as well as greenhouse gas emissions.

Pregnant women who gave interviews to Rotarians in Addis Ababa, Ethiopia, said that family planning was their top priority—a sentiment echoed by their families and doctors. This led the Rotary clubs of Finot, Ethiopia, and Darmstadt, Germany, to develop a global grant project that trained skilled birth attendants and midwives in three health centers to provide family planning counseling. Medical staff also conducted home-based counseling for 1,500 women and organized a one-day family planning workshop for 90 women who were receiving obstetric care.
GIRLS’ EDUCATION

A woman with no schooling has four or five more children than a woman with 12 years of schooling, which means that educating girls will have a huge impact on population growth. While the regions of the world with growing populations are often the ones with the lowest per capita carbon emissions, reducing fertility rates will still have massive benefits — not only for the planet but also in reducing intergenerational poverty. And, the Drawdown authors note, one study found that educating girls is the single most important factor in reducing vulnerability to natural disasters, which occur more frequently with the extreme weather events associated with climate change.

In Bosnia-Herzegovina, about 90 percent of Roma women are illiterate and less than 15 percent of Roma children go to school, leaving them vulnerable to human trafficking, among other things. The Rotary clubs of Mostar, Bosnia and Herzegovina, and Denver, Colorado, partnered with a local nonprofit on a global grant project that mentored 80 families with at-risk girls. Twenty students from the University of Bosnia volunteered as mentors, and 15 Roma girls enrolled in school as part of the effort. Organizers estimate that at least 1,000 parents, teachers, and girls in 20 communities learned about the importance of gender equality in education through printed materials and workshops.
REGENERATIVE AGRICULTURE

Regenerative agriculture practices include avoiding the use of plows to keep from disturbing the soil; planting a diverse array of cover crops; and limiting or abstaining from pesticides and synthetic fertilizers. These methods boost the amount of organic matter — carbon — in the soil, improving its health and that of the plants growing in it. According to the Drawdown authors, regenerative agriculture increases organic matter in the soil between 4 and 7 percent over 10 years, representing an additional 25 to 60 tons of carbon stored in the ground per acre. That reduces the need for fertilizer — which means regenerative agriculture can help cut carbon in the atmosphere while increasing farmers’ production.

Forty people from Meihuavillage, Taiwan, were trained in organic farming techniques through a global grant project of the Rotary clubs of Taipei Lungmen, Taiwan, and Patumwan, Thailand. The effort, carried out in partnership with the Organic Farming Association of Taiwan, included creating a training facility and providing internships at organic farms. Organizers expected that growing without pesticides would lower farming costs and that selling organic vegetables at a premium price would improve villagers’ earnings.

REDUCED FOOD WASTE

One-third of the fruits and vegetables, meat, and other food the world produces never gets eaten. Instead, it rots unharvested in fields, spoils in storage, or sits forgotten in the back of the refrigerator, only to end up in the garbage. The production of uneaten food squanders resources such as energy, land, and fertilizer. In landfills, food waste generates methane, a greenhouse gas. From start to finish, uneaten food is responsible for releasing the equivalent of 4.4 million gigatons of carbon dioxide into the atmosphere each year, the Drawdown authors write.

Centroabastos, a food wholesaler in Bucaramanga, Colombia, generates about 20 tons of organic solid waste per day. The Rotary clubs of Bucaramanga Nuevo Milenio, Colombia, and Woodland Hills, California, are working with the company’s nonprofit arm to set up a center that will use the surplus produce to provide training in safe food handling and processing. The project is expected to reduce food waste by 15 percent while creating employment opportunities.
ROOFTOP SOLAR | *Drawdown ranking: 10*

The sun is an underused energy source: The *Drawdown* authors note that less than 2 percent of the world’s electricity is generated through solar photovoltaic panels. However, the panels have become more widely adopted over the past decade as the technology has grown more affordable. Homeowners and power utilities are beginning to replace or supplement fossil fuels with solar panels as a source of electricity. And the more than 1 billion people in developing parts of the world who rely on kerosene lamps and diesel generators can now use affordable clean energy instead. That could make solar energy a powerful tool for eliminating poverty, even as it dramatically reduces greenhouse gas emissions.

In Gressier, Haiti, the power grid near the Respire Haiti Christian School is unreliable, so the school for orphans and disadvantaged children used a diesel generator to operate the pump for its well. **The Rotary clubs of Leogane, Haiti, and Parker, Colorado,** led a global grant project to install a hybrid solar, diesel, and grid power system. The school saved $4,000 a year in fuel costs and reduced air and noise pollution. The hybrid system also powers interior and exterior lighting, computers, fans, and educational tools. A new water distribution system, which uses the hybrid power, and a literacy program were also part of the grant.
TROPICAL FORESTS

Tropical forests once covered 12 percent of the world’s land; today, it’s 5 percent. According to the Drawdown authors, that loss accounts for up to 19 percent of the greenhouse gas emissions caused by humans. Reforestation would enhance the planet’s ability to absorb carbon dioxide through photosynthesis while providing wildlife habitat, contributing to flood control, and conserving soil and water. But to be sustainable, the authors note, reforestation must demonstrate immediate social and economic value.

The Maromizaha forest in eastern Madagascar is home to 13 species of lemurs, 77 species of birds, 60 species of amphibians, and a rich assortment of other flora and fauna. But it’s threatened by a push for new agricultural lands and a need for charcoal as fuel in nearby villages. The Rotary clubs of Antananarivo-Tsimbaroa, Madagascar; Torino Mole Antonelliana, Italy; and Annecy Tournette, France, partnered with a local nonprofit on a project to reforest about 125 acres with native species grown from wild seed, creating jobs for area families and a tourism infrastructure. Rotarians also trained women in gardening techniques, constructed toilets, and provided 500 improved cookstoves that reduced the families’ dependence on charcoal.

I believe we are working too slowly and that many people will suffer before we truly change course.”

TAYLOR CASS TALBOTT
ROTARY PEACE FELLOW
Talbott was a 2011-13 peace fellow at Tokyo’s International Christian University. She is a project officer for WIEGO (Women in Informal Employment: Globalizing and Organizing), a nonprofit that focuses on securing livelihoods for the working poor, especially women, in the informal economy.

What is your biggest fear related to climate change?
I fear there are many sources of climate change that we don’t yet understand. For example, recent research shows that plastic in the environment emits methane. If this is the case, we may be very far from a viable plan to reduce the impact of climate change.

What do you struggle with most as a professional working to combat climate change?
We are so bombarded by environmental problems that we are creating siloed solutions. For example, many of the urgent responses to ocean plastics include the establishment of incineration facilities, which exacerbates both climate change and wealth disparity. We must think of these issues holistically, and we must listen to the voices of marginalized people, who are suffering the worst effects of climate change.

“Be a Part of the Solution”
Members of the Environmental Sustainability Rotarian Action Group (ESRAG) can help your Rotary club or district plan environmental projects and publicize your efforts. Learn more and get involved at esrag.org.