New America
Resilience Audio Interview

JUDITH RODIN
Failing safely.

AMS: I have been talking to lots of different people about resilience and I've been talking to them about personal resilience and organizational resilience. I've pushed them to define it and to think of examples of where they've seen resilience, but you're in a whole different category. You actually wrote a book on resilience. The book is called *The Resilience Dividend: Being Strong in a World Where Things Go Wrong*, published in 2014 by the Rockefeller Foundation, where you were president. So you've got plenty of things to tell us, but I want to start by just asking you: How did you start thinking about resilience? What got you into this? And why did you write the book?

Judith Rodin: The journey of thinking about it really came at the beginning of my academic career. I'm a psychologist and early in my work at Yale, we were interested in stress and coping. We didn't use the term resilience then, but we were quite interested in the question of why some people or entities seem to do better than others with comparable stressors. That was kind of a meta-narrative all the way through my early academic career. When I got to Penn as President, we, among the many other things that my colleagues and I are proud of, I think we're quite proud of the fact that we, with our neighbors, intervened and transformed a very distressed neighborhood in West Philadelphia. There I really saw on the ground the importance of building resilient capacity, whether it was physical infrastructure, economic resilience, or social resilience. So that no matter what stressors hit, people and their institutions would have the capacity to rebound more effectively. It's there that we really began to think about the types of shocks—the kind of shocks that come from climate-related storms or floods, but also cyber shocks, economic shocks—and develop a broader narrative around shocks. But we also came to see that equally challenging were the slower burning stressors—poor transportation systems, inequality, all of those deteriorated housing stock—that you don't focus on as shocks, but cumulatively, they continue to aggregate as stressors. And then of course the big one was going to Rockefeller when we were called upon, only a few months after I became president, to intervene in New Orleans after Katrina and help them figure out their recovery. So the lessons that we learned and the interventions that we implemented really form the basis, both for our work at Rockefeller and much of the thinking in the book.

AMS: That is fascinating. I never knew that, although I knew you were a psychologist as a professor and scholar. But you really have seen the through line from personal resilience to community resilience to a city's resilience, and you see commonalities across all three. I think many people would say that what makes a human being resilient in the face of tragedy or shocks would be very different than what makes a city resilient.

Judith: I think that's because many people think of resilience at the individual level as a kind of born capacity. We were very clear in being able to demonstrate that it's actually a skill that can be learned. And therefore, we think that it's the case whether you're a person or a city or a corporation or a national government, there are specific characteristics that define resilience. I could talk about the five things that we think are most critical because all resilient entities have these in common.

AMS: I want you to absolutely march us through it. But let me start by asking you to define resilience itself. I discovered that when I ask people, there are people who think of it more as endurance, just kind of powering through, and then there are people who think of it as bouncing back. So if you'll start by defining it and then I would love to talk through the common dimensions that you've identified.

Judith: I define resilience in the work we did at the Rockefeller foundation and in the book, and this is the definition that we used and we found it quite valuable. It has three parts. The first is preparing. That is, becoming able to really understand and assess one's vulnerabilities and prepare. And the goal in preparation is to manage the unavoidable and avoid the unmanageable—that's really the cliffnotes mantra. Everything is avoidable. So you want to prepare enough to be able to manage that which you can't avoid but also to avoid that which you can through preparation. So that's the beginning. The second is the capacity to bounce back more quickly and effectively if something does hit. The third is the capacity to grow and transform after a shock. The third is quite different from the way a lot of people or entities respond to shock, because often we hear the rhetoric "I just want everything to get back to normal." But the "normal" may have all of the vulnerabilities that made this hit harder than it might have been in the first place, whether that's a structural vulnerability, or a personal home vulnerability. So the widely used claim that a crisis is a terrible thing to waste is in fact true, you want to be able to grow and transform if a crisis does hit, and we have many examples of how and where that occurs. So these are the three elements in that definition.

AMS: What fascinates me is that you start your definition before the crisis. I really think most of us think about resilience as something that you draw on when a shock or crisis, or bad thing in your life hits. But you actually say no, resilience starts with foresight, preparation, and a cast of mind. The assumption that things will happen, and some you can avoid, some you can't—that is really interesting. It does not start in response to something, it starts beforehand.

Judith: Definitely, and preparation is incredibly important. Early in the effort to intervene around climate change there was a debate between those who believed in mitigation strategies and those who believed in adaptations early, and what resilience does is actually integrate those two. So the awareness phase, the preparation phase are the mitigation strategies. But because many elements of climate change or many elements of stressors have already occurred, you need to also build the capacity to adapt, not to give in, but the capacity to bounce back more effectively and deal with those things that either have already happened or are going to happen that you can't mitigate.

AMS: I think it's counterintuitive but very important. You've mentioned awareness as that early phase of preparing, you have to be aware of what could happen and what you're going to do. So of the tools and practices we can learn, awareness is the first. So march through the rest of them.

Judith: These are five characteristics or five principles that all resilient entities have, and therefore in order to build resilience we have to develop them. The first is awareness. They're aware of their vulnerabilities and their assets. They have both the willingness but also the capacity to assess and take in new information and adjust to that information in real time, using monitoring and feedback loops. And that's really important. So it's not a static process. It's a dynamic process that requires continuing awareness of what's going on and and intentionally building and using feedback loops in order to be responsive to real-time information.

AMS: And openness to the things you might not want to hear. As you're saying that I'm thinking, “but I like sticking my head in the sand.”

Judith: Well, this is exactly right. There are many instances, and we've worked with many of them, where if you talk to corporations they often have CEOs who don't want to hear bad news. There's a lot of groupthink and monitoring around that issue, and that's a terrible risk factor for a corporation as it is for an individual, a city, or any other kind of entity. So that is the non-obvious number one. Non-obvious number two is that resilient entities are diverse and they're often redundant in the types of backups and alternatives they can access. So that if one part of the system is challenged it can rely on another. Often we see failure because that doesn't happen—there isn't a backup, there isn't a diversity. Here, we mean diversity of responses, but we also mean diversity of approaches, inputs, ideas, people. Resilient organizations are those that are more diverse, and resilient companies have processes that have redundancies in them. This was a challenge as we introduced this notion because there was a very significant move at the end of the last century for lean manufacturing, lean value chains, and we saw tremendous weakness in the global economy because there wasn't enough redundancy or diversity when shocks hit.

AMS: Which is again a failure of preparedness because it means you are not thinking ahead to the things that could happen. I'm laughing as I listen to you because my husband is the one who always imagines, you know, if we're going to the airport there could be an accident, there could be a backup, and I’m the one who says it takes 40 minutes. So it's so these are our habits of mind. But I think the diversity point is so critical. I’ve seen it myself as the head of New America, where we have a really diverse team around the table in every different kind of diversity you could imagine. It is the blind man and the elephant—people see the problem differently and thus they think different contingencies or different responses. So this idea of both diversity and redundancy is essential. You have a chapter that shows what you have when you don't have that attempt. Where you say “When crisis becomes disaster,” which I assume means in some cases you make things much worse by not having this kind of diversity and redundancy.

Judith: Right, the premise is that not every disruption has to become a disaster. You may not be able to prevent the disruption, but you can prevent the disruption from having disastrous consequences, and that is a very important distinction. That's partly what these resilience principles are trying to say and are trying to protect in terms of outcomes. Your example about New America leads perfectly into the third, because the third principle or characteristic is that resilience systems are integrated in the way they share information. They ensure with intent-coordinated action across all components. You know the left hand always knows what the right hand is doing and they're working together towards the same goals. When that doesn't happen, particularly in times of stress and crisis, then events can become catastrophic. I think a great example that I used in the book was the Boston Marathon because Boston had been practicing as a city for any kind of crisis. They didn't think it would come in the marathon necessarily, but they thought there might be a terrorism crisis or horrific snowfall that might cause a crisis. They developed a set of tabletop exercises and all of the components of the response system practiced together, and then they integrated so everybody knew what they were supposed to do if and when something hit. Then they practiced during events, which I don't know that their citizens knew, so if one of their sports teams won the national championship and there was a parade, they practiced during that parade. They really worked to hone that element of integration and information sharing. So it's not an accident that no one who was red-tagged and reached the hospital that day died, because they had those responses down so quickly and they knew where to go and who was supposed to do what. The Governor knew that he was in charge of communication, and so he didn't allow misinformation and digital wildfires to occur, which often disrupt populations. It's a great example of integration and a positive outcome.

AMS: If you have to practice like that for emergencies, I am certain that it improved their regular performance. That kind of integration fights the silos that we all have to contend with all the time, that are simply real barriers to efficiency, innovation, and healthy organizations.

Judith: As you know very well having worked in government, those silos are ingrained, whether it's at the local level or at the national level. Often it's really preparation that has integrated across those governmental silos that is most important in making a resilient response to a challenge.

AMS: Exactly. So we have awareness, diversity, integration. What's number four?

Judith: The fourth is that they're self-regulating. It means that if one part of the system fails, the entity can delink its components to keep the problem from spreading. So I'd like to describe this as the difference between safe failure and failing catastrophically. For example, I think you know that I co-chaired for Governor Cuomo New York State's recovery from Sandy and its preparations going forward. As we looked at the ConEd (Consolidated Edison Utilities) failure, there really was no need for all of lower Manhattan to go down. If Con Ed had had a Smart Switch which were readily available (and now of course those are in place), it would have detected where the failure was, it would have shut that station down, and delinked the rest of the system from it. So there was a failure, but the catastrophic failure could have been avoided.

AMS: That's fascinating because you're highlighting a difference between integrated and connected. You can be too connected. Being modular and being able to disconnect pieces without taking the whole system down is critical. Being integrated means the right people being connected to the other right people. It doesn't mean everybody being connected in one vast system.

Judith: In fact that's exactly the right characterization. You want to integrate the planning process and the decision-makers who coordinate the actions, but you don't want such tight, networked systems that they can't be decoupled. The modularity is critical and the electric grid example is a great example, but you should also think of it as a metaphor for your own personal life. There are ways to fail—we're not saying that this prevents failure, we're saying that there are ways to fail safely rather than catastrophically. If something bad happens to you as an individual, and you suddenly generalize it to every other part of your life, you're beginning to fail catastrophically. If you can modularize or compartmentalize it to that which was the episode, you build in the capacity to fail safely and rebound from it more quickly and more effectively.

AMS: I'm going to take this directly home to my college freshman. I was thinking exactly that as you were talking before, the danger of all-or-nothing thinking is exactly not compartmentalizing. “I fail this test, so I'm stupid, so I will never be able to do anything,” as opposed to, “I didn't study enough so I fail this test so, okay. I'll study harder next time, it has no bearing on everything else.” That's really fascinating.

Judith: That's why the through line that makes sense to me really does come from my early psychological work, because this idea was something we were working on then. It really has been a great through line for me and in my own thinking. I would say the fifth is that all resilient entities, people or individuals, cities, and companies are adaptive. They’re nimble and they're flexible. They have the capacity to adjust to changing circumstances. They develop new plans, take new actions, modify their past behaviors. And again the metaphor is the entity is flexible. It bends rather than breaks. With adaptiveness and flexibility, in some ways it's almost easier to think about it as individuals, but it's equally true for the natural and built infrastructure. So as New York is rebuilding the pilings in lower Manhattan, it is using materials that, unlike concrete, bend with the wave action. Real flexibility will make it bend, rather than break if the waves become stronger and hit harder and higher. So we have both building materials and also life materials that should allow us to do that with greater intent.

AMS: Oh, I love that. I was talking to a friend recently about resilience, and she said that she always thinks of the blade of grass that seems so fragile, but bends when the wind comes and so doesn't break. And of course you think about palm trees that grow in an environment where they expect hurricanes and they bend, and their leaves are such that they're able to have the wind go through them rather than putting up a rigid surface.

Judith: That’s exactly right. In the developing world, as we were looking at natural infrastructure intervention on coastlines, where they don't have gazillions of dollars to build levees and dikes,

it often is the right kind of vegetation, both palm trees and mangrove trees that absorb water very effectively and bend rather than breaking. All of these elements of the natural infrastructure can be built or rebuilt to be protective because they are more flexible and more adaptive.

AMS: It also gives us a great opportunity to develop new materials that will probably be better for us in all sorts of ways when you think about that opportunity.

Judith: I would just say, I think that one of the things that we did at Rockefeller of which I am most proud is creating the initiative called 100 Resilient Cities. What's really interesting about the effort is that not only did we work with the cities to develop a chief resilience officer and develop a real strategic plan with goals for the resilience projects, but our goal was also to build a marketplace of new resilience goods and services by the private sector, so that these new ideas could be infused in real products or real services that would also make us more resilient. By the time this initiative was completed this year, there were over 90 companies offering or having developed resilience-based goods and services. We think that's part of what the world needs and we're seeing the marketplace respond to that.

AMS: Well, you anticipated my next question, I was going to ask you about resilient cities. You developed the concept of a Chief Resilience Officer, and you supported Chief Resilience Officers, not to silo resilience to that person's office, but rather to spur resilient thinking—the awareness, preparedness, all the different attributes that you've just described—throughout the government.

Judith: Exactly. The goal of the Chief Resilience Officer, reporting either to the city manager or the mayor; that was one of our requirements in doing the funding, was first to break down the silos in government, and second, to break down the silos between government, the private sector, and community groups and NGOs so that the city really could build an integrated strategy. That was this person's role and they were marvelous. The second goal was information sharing; we had a hundred of them on six continents, so they shared all their learning their best practices. And then we opened it up to others so that rather than everybody, every city, every government having to learn this *de novo*, they were really able to show and share what they learned, what worked, and where they were having problems and what didn't work. It was interesting to watch them also form subgroups. Right away, they formed two subgroups around water—either too much or too little, and all of the strategies that they used. There were those who formed a subgroup around earthquakes, and so suddenly Christchurch New Zealand was talking to San Francisco, and a tremendous amount of learning went on there that is still going on. It really did build enormous capacity much more quickly than if any of them was going it alone.

AMS: I just think the whole idea of being able to be a Chief Resilience Officer is one of those new job categories. It doesn't have to be that specific title, but thinking about building resilience as a career path is something the world needs, but also one that many people would be interested in. Obviously if you're an environmentalist, you would think about it, but so too if you're an engineer.

Judith: Absolutely, and we're seeing now master's programs developing, Penn has one and Columbia has one, Harvard has one. I'm not sure but there may be many others, Tulane I know has one. These are programs where they are giving master's degrees in resilience and the program involves planning, design, but also engineering, some architecture, and a lot of economics. These are not only new job categories, but they are new ways to integrate cross-disciplinary knowledge and spark new ways of acting through those cross-disciplinary findings.

AMS: It's an area that I think if I were an undergraduate today, I would be truly interested in personally and from a career point of view. I want to ask you about the biggest stressors you see facing us nationally and globally. But before I do, your book is not called *Resilience*, it's called *The Resilience Dividend*. So I want to ask you about this idea of a dividend from resilience.

Judith: The reason that I was most excited to write the book was that I wanted to be able to demonstrate from all of the work that we had seen, some of it we funded and some of it developed on its own, that showed that investing in resilience pays dividends both in good times and in the bad times. We used to say at Rockefeller, if a dollar in is only a dollar out in outcome, shame on us. That was the narrative that we wanted planners and investors, whether it was government funding or private sector funding, to adopt as well—that you need to get more bang for the buck. One of the things that was so interesting is this narrative connected regard right across the political parties and political attitudes. First of all, devastating events had happened in Republican as well as Democratic districts across the country. Secondly, as mayors always say, there's no Republican or Democratic way to collect the garbage. So really it's a broad embrace that I think has made it more effective as well. Let me give you a couple of examples of where we've already seen the resilience dividend in place, and what thinking really led to it. In the recovery after New Orleans, obviously there was a lot going on, but one of the things that happened is that they received three billion dollars to build new green and grey water management infrastructure. Now that's great, but to get the resilience dividend, they also targeted job training for new jobs that this funding created, to bring down the high unemployment rates among their male African American population, which was about 56 percent at the time they started this. So they said, "let's get more bang for the buck: We don't only want to think of this as an infrastructure project, we want to think of it as a training project, as an employment solution to some of the social and economic inequity, which is also part of our problem." In Hoboken, the city is very vulnerable to flooding given its topography, and it was also struggling with both a lack of parking spaces and a lack of green space in the central area of the city. So they developed a single solution that's solved all three. They used a Dutch design, which we helped them to understand because Rotterdam was one of our cities. They've been building underground parking garages, which are engineered to serve as flood water catchment facilities when they have flooding, but they put them underground so that they could have new surface green space for recreation. So three wins with one investment.

AMS: That's fascinating. So really it's an invitation not to do something you have to do because you're imagining a crisis, but rather it's an opportunity.

Judith: Well, it is an opportunity, and this is why integration across silos and city government is so important. What you see is that the head of transportation has his or her transportation projects. The head of energy has their own projects, etc. They never think about— because they're not in this mindset, or they haven't been in the mindset— how they could develop a project that would solve all three at once and get three wins for one investment. So Boulder, Colorado had a flooding problem, and they brought together those three units of city government and their solution was a riverbank flooding solution that also built bike paths and green space as part of the infrastructure to that solution. So there wasn't some park far away that they spent the recreation money on and that freed resources for different things at another time. We keep saying over and over again: look for the resilience dividend, both that you're getting more bang for the buck, but also that you're doing something that pays off in the good times. Not every crisis will happen. You want to be prepared for the bad stuff, but you want to benefit when you're in good times as well, and that's what makes this investment so great. We didn't even think about other resilience dividends when we were doing some of this work. I remember Norfolk, Virginia was one of our early cities, and we're working on amazingly interesting flooding solutions with the U.S. Navy, now integrating its strategies, which they hadn't done before—the national government was thinking one way, the Army Corps of Engineers had a different project, and then the city. So one thing was to integrate all of them. But then one day, one of my colleagues came running into my office and said Norfolk just called and Moody's either kept or improved their Municipal Bond rating. In the report they said it was because they were working with the Rockefeller Foundation on their resilience strategies, which went way beyond flooding, but to Moody's it made them a very good bond risk.

AMS: That's great. That's a real dividend right there, a bond dividend. I love that. I don't want to end on a negative node, but I do want to ask you about the challenges you see. Resilience in the sense of preparing for disasters and having the right systems and being adaptable is important at any time, but in the book you say that in this century, we're really facing huge stressors. You talk about climate, and you talk about urbanization and globalization. So I'd love it if you would just talk a little bit about each of those and how you see those particular challenges for why we need resilience right now.

Judith: Absolutely. I do think this is just reality, it's not Cassandra-like catastrophic thinking. I think crisis is the new normal. There isn't a week that goes by that we don't see in some part of the world something really bad happened. How we prepare is going to be increasingly critical to our long-term success as individuals, as cities, and as countries. You need to prepare by building resilient capacity because you can't predict every bad thing. So this is just the beginning. I will talk about those three, but I also want to emphasize that you can't build resilience only by looking in the rearview mirror right at the last crisis that happened. This was so clear to us in our Sandy Commission because when we looked at some of the businesses or hospitals that were the hardest hit during Sandy, many of them had put their backup generators in the basement after 9/11 happened because they didn't want the backup generators on the top floor. Of course, they flooded and they failed. And so there is a risk you can't predict. So here, I would put my backup generators in the middle. Again, the metaphor of not just being

influenced by what happened before. However. It is very clear that climate change is totally escalating the risk. If you just look at the cost of climate-induced disasters, it is estimated that the cost since 1980 of just the U.S. government responding to climate-related disasters is up 500 percent. It's extraordinary. The UN estimates that just adapting to the climate change that's already occurred is likely to cost five hundred billion dollars yearly by 2050 if we don't put in the right mitigation strategies. New York can expect sea level rise of about 11 to 20 inches by 2050. All of the climate-related stressors and shocks—and this is just the ones we know about—the challenge to our food supply, the challenge to our water supply is growing both in obvious and non-obvious ways. Scientists working on resilience are showing that the loss of pollinators, which is a climate-induced loss, is affecting tremendously the way the ecosystem is developing new flora and it will have profound effects both on our human health and certainly on our food supply. A quarter of humanity faces looming water crises, from India to Iran to South Africa. We have our countries already, but many other countries have had thirsty cities that have faced acute water shortages already. We've seen it in Sao Paulo, Brazil and Chennai, India and certainly in Cape Town that almost reached what they call day zero, which would have been the day when all its dams were dry. Now the reason that I talk about those three in particular, because it's happening in so many other places, is that these are also cities that have had massive, massive flooding.

AMS: Too much water and not enough at the same time.

Judith: Yes. We need to think about that. Thinking about resilience in that context is really important. If we think about urbanization, it's estimated by UN Habitat that about 40% of the built infrastructure that will be present globally in 2050 has not yet been built. A lot of that is in South and Southeast Asia where urbanization will be most massive, and some parts of Africa. And so we have an opportunity now, using these resilience principles, to really influence how that infrastructure is built. It can be built resiliently or not resiliently. We at Rockefeller worked with the International Finance Corporation of the World Bank and created a resilience screen for them to use when they were deciding on what infrastructure investments to make. Importantly, it was resilience around the physical and built infrastructure, but we also added in economic and social resilience with the resilience dividend framework in mind. So we think we can influence the future course of urbanization towards more resilience, towards greater success. How transit systems are built for example is going to be extremely critical going forward and there are resilient and non-resilient ways to do it. I talk in the book about Medellin, Colombia. It’s a compelling example because they built gondolas and escalators up to the hills where the most disadvantaged communities were living, and they were very disconnected from the economic and social core of the city, and so they were much more vulnerable to gangs. Medellin at the time had a 90% crime rate.

AMS: It was that drug capital of the world for a long time.

Judith: Totally. Drug and murder capital. But they linked these people through transit systems and at each transit stop, they creatively put little clinics and child care centers. So again, thinking about the resilience dividend while they were doing this construction, they built a transit

system that moves people effectively. They connected social and economic goals together and really raised capacity, and they drove down their crime rate. What a resilience dividend to think about when we build further urbanization. And then globalization. For me, case number one is 2008. I think our global financial system was extremely brittle. It was not at all resilient. It was way too interconnected, there wasn't sufficient modularity—all the things that we talked about earlier. I do worry that as we regulate and rebuild that system, we intentionally try not to rebuild the brittleness into it in the new global architecture. There are a lot of very smart economists now, working on this and thinking about it, way smarter than I am in this area, but who have been really stimulated by the resilience metaphor as a new way of thinking about global system.

AMS: It is a very interesting challenge, if you think about your self-regulating point. On the one hand, a global economy has to be interconnected. On the other hand, you do need to be able to shut off parts. And indeed, there were countries that could do this, like the Canadian banks, which simply were not indebted and tied into the housing crisis in the way the American and European banks were, and so Canada actually came out quite well. Even at the level of individual countries and individual firms, it's that balance between being connected and having some kind of switch where contagion does not take everybody down. It's a real challenge when you think about how globalized systems work

Judith: Exactly, but it's a challenge that needs to be taken on and confronted because it will have critical consequences for what our future looks like.

AMS: Well, Judith Rodin, you have given us a more than a primer, a wonderful tour of how to think about resilience to how to break it down into its component parts. Above all I want to end on this note that resilience is not some kind of inborn property. It is a set of practices that can be learned and acquired and practiced, and that is a very optic optimistic message. So I thank you so much.

Judith: Thank you.