



# MAKING PREVENTION EVERYONE'S BUSINESS:

LESSONS LEARNED FROM  
DISASTER RISK REDUCTION,  
NUCLEAR NON-PROLIFERATION,  
AND PUBLIC HEALTH

Sabrina Stein  
Renata Segura

Karim Kamel  
Alana Kolundzija  
Colin Walch



SSRC

Conflict Prevention and Peace Forum





# MAKING PREVENTION EVERYONE'S BUSINESS:

LESSONS LEARNED FROM  
DISASTER RISK REDUCTION,  
NUCLEAR NONPROLIFERATION,  
AND PUBLIC HEALTH

**Sabrina Stein**  
**Renata Segura**

Karim Kamel  
Alana Kolundzija  
Colin Walch



**SSRC**

Conflict Prevention and Peace Forum

## ABOUT THE AUTHORS

**Sabrina Stein** is a program manager at the Conflict Prevention and Peace Forum (CPPF), a program of the Social Science Research Council (SSRC).

**Renata Segura** is the associate director at the Conflict Prevention and Peace Forum (CPPF), a program of the Social Science Research Council (SSRC).

**Karim Kamel** is a program assistant with the Carnegie Corporation of New York.

**Alana Kolundzija** is the founder and principal consultant at Collective Impact.

**Colin Walch** is a post-doctoral researcher at the University of California, Berkeley.

## ACKNOWLEDGEMENTS

The report benefitted from invaluable inputs from: Ayham Al-Maleh, Andrea Bartoli, Huw Beynon, Simone Buechler, Tatiana Carayannis, Lesley Connolly, Alexa Dietrich, Sarah Doty, Ebru Gencer, Michele Griffin, Gustavo Macedo, Rachel Madenyika, Jack Mayerhofer, Laurie Mincieli, Laura Rutishauser, Marco Toscano-Rivalta, and Ninan Varughese.

This work carries a Creative Commons Attribution-NonCommercial-NoDerivs 3.0 License.

This license permits you to copy, distribute, and display this work as long as you mention and link back to the Social Science Research Council, attribute the work appropriately (including both author and title), and do not adapt the content or use it commercially. For details, visit <http://creativecommons.org/licenses/by-nc-nd/3.0/us/>

## **The Conflict Prevention and Peace Forum (CPPF)**

was established in October 2000 to strengthen the knowledge base and analytical capacity of the United Nations in conflict prevention and management, peacemaking, and peacebuilding. We support UN policymaking and operations by providing UN decision-makers rapid access to leading scholars, experts, and practitioners outside the UN system through informal consultations, off the record briefings, and commissioned research. CPPF has immediate access to senior UN decision makers, first-hand experience with UN policy and operational planning, and an extensive network of experts who complement our staff's expertise.

**Design: [studiovisual.co](https://studiovisual.co)**

Art Director: Camilo Jaramillo R.

Editorial Design: Nancy Cuéllar C.

Fire Photo by Thomas Ehling on Unsplash

# TABLE OF CONTENT

MAKING PREVENTION EVERYONE'S BUSINESS: LESSONS LEARNED FROM DISASTER RISK REDUCTION, NUCLEAR NONPROLIFERATION, AND PUBLIC HEALTH	7
Introduction	8
Background	8
What is Being Prevented?	12
When Should Prevention Happen?	13
Vertical Prevention	14
Horizontal Prevention	16
Targeted Prevention	19
Structural Prevention	20
Individual Prevention	22
Conclusions and Recommendations	23
References	26
PREVENTION IN DISASTER RISK REDUCTION	27
Introduction	28
Conceptualization and Operationalization of Prevention in DRR	28
The Sendai Framework for Disaster Risk Reduction	33
Success and Failure in Prevention in the Field of DRR	35
Shortcomings of DRR in Prevention	37
Conclusions: Disaster Prevention as a Tool for Conflict Prevention?	38
References	41
PREVENTION IN NUCLEAR NONPROLIFERATION	43
Conceptualization, Analysis, and Operationalization	44
Prevention Frameworks at the National and Global Levels	45
Prevention in Practice	48
Successes and Failures	49
Essential Elements for Minimal Success	51
Conclusion	52
References	53
PREVENTION IN PUBLIC HEALTH	55
Background	57
Case Studies	58
Limitations of Prevention in Public Health	62
Conclusion	62
References	63





1

# MAKING PREVENTION EVERYONE'S BUSINESS:

LESSONS LEARNED FROM  
DISASTER RISK REDUCTION,  
NUCLEAR NONPROLIFERATION,  
AND PUBLIC HEALTH



SSRC

Conflict Prevention and Peace Forum

Sabrina Stein  
Renata Segura

## INTRODUCTION

Prevention is at the heart of the United Nations Charter, which calls on the organization “to take effective collective measures for the prevention and removal of threats to the peace.”<sup>1</sup> Yet, in the seventy-three years since its inception, getting prevention right has been one of the biggest challenges for the UN. Despite difficulties in figuring out how to define and operationalize prevention, the extent of human suffering as a result of crises and conflicts today is testament to the urgent need to rethink how the UN and member states do prevention.

Renewed interest in getting prevention right stems from Secretary General António Guterres’ vision for the UN, influenced by the 2015 and 2016 reviews, which complements the sustaining peace approach. The SG has introduced a set of reform proposals to the UN peace and security architecture, the UN development system, and UN management that were designed with prevention and sustaining peace at their center.

This paper argues that prevention would do well to follow some of the lessons learned from disaster risk reduction,<sup>2</sup> such as the need for *multistakeholder and multilevel engagement*; from public health,<sup>3</sup> including the *importance of targeted and individual prevention*; and from nuclear nonproliferation,<sup>4</sup> namely the need for *permanent prevention*. These three fields were chosen because of the diversity of what they aim to prevent and how they conceptualize and operationalize prevention, and considering these three issues in conjunction can shed new light on how prevention is thought of. While these fields do not have perfect track records on prevention, they do show that **prevention needs to be permanent, intentional, and everyone’s business**.

As the UN system focuses on the SG’s reforms and member states focus their attention on negotiations concerning the future of the UN architecture, there is a danger that discussions on prevention and sustaining peace will be put on the backburner and lose much-needed momentum. With this in mind, this research hopes to continue the discussions on prevention and sustaining peace by bringing a set of different perspectives from these three fields.

The report argues that examining other fields that work with prevention at their core might help bring new ideas to the prevention agenda and contribute to the discussion on how to make prevention a concrete and actionable reality for both the UN and member states.

## BACKGROUND

Secretary General António Guterres campaigned on a platform centered on prevention. Since taking office, he has put prevention at the heart of his mandate. Prevention, in the SG’s vision, is “everything that we can do to help countries to avert the outbreak of crises that take a high toll on humanity, undermining institutions and capacities to achieve peace and development.”<sup>5</sup> Guterres has emphasized that “the United Nations (UN) must uphold a

1 United Nations, *Charter of the United Nations* (October 24, 1945), available from <http://www.un.org/en/charter-united-nations/>.

2 References to and examples from the field of disaster-risk reduction are drawn from the paper produced by Colin Walch for this study, titled “Prevention in Disaster Risk Reduction.”

3 References to and examples from the field of public health are drawn from the paper produced by Alana Kolundzija for this study, titled “Prevention in Public Health.”

4 References to and examples from the field of nuclear nonproliferation are drawn from the paper produced by Karim Kamel and Lovely Umayam for this study, titled “Prevention in the Nuclear Nonproliferation Regime.”

5 António Guterres, “A UN of the Future to Effectively Serve all Member States,” Letter from the Secretary General to United Nations Member States, May 31, 2017.

strategic commitment to a ‘culture of prevention’” and that the organization must work within a “peace continuum” that encompasses “prevention, conflict resolution, peacekeeping, peacebuilding and long-term development.”<sup>6</sup>

This push for a prevention-focused UN builds on the 2016 Security Council Resolution 2282<sup>7</sup> and General Assembly Resolution 70/262 on “sustaining peace.” The sustaining peace approach is a response to the belief that the work of the UN system should go beyond addressing the symptoms and instead tackle the underlying causes of conflict, including different kinds of exclusion, systemic discrimination, and marginalization. Sustaining peace calls for long-term engagement both by national actors (state and nonstate) and by the UN system and the international community, moving from reactive to preventive mindsets.

Sustaining peace, then, is understood as “a goal and a process to build a common vision of a society,”<sup>8</sup> which requires an “understanding of prevention as, not merely a tool for managing short-term crises, but rather an approach to sustaining peace in the long term.”<sup>9</sup> Sustaining peace recognizes that to sustain peace efforts, they need to be permanent and address the underlying issues that lead to crisis. These efforts should also focus on the building blocks that are the foundation of a healthy and peaceful society. Positive peace should be understood as more than the mere absence of organized violence, as it should include elements of “cooperation, freedom from fear, freedom from want, economic growth and development, absence of exploitation, equality, justice, freedom of action, pluralism, and dynamism,” which need to be considered in combination with “national values, which are expressions of other goals that nations pursue.”<sup>10</sup> Therefore, building positive peace is a medium- to long-term process that demands sustained commitments by both the international community and member states.<sup>11</sup>

Further developing this shift, under Guterres, the United Nations partnered with the World Bank to produce the report *Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict*. This report argues that “perceptions of exclusion” are one of the principle causes of violent conflict, because when groups assign blame either to the state or other groups for their economic, political, or social exclusion, it often leads to violence.<sup>12</sup> The report also argues that prevention should focus on overcoming horizontal inequalities, understood as “differences in access and opportunities across culturally defined (or constructed) groups based on identities such as ethnicity, region, and religion.” These types of inequalities, according to the report, create a breeding ground for the accumulation of grievances that can lead to conflict. Once grievances “harden,” the options for prevention become narrower, which is why prevention efforts need to be sustained over time in order to address the structural causes of violence.<sup>13</sup>

---

6 António Guterres, “Challenges and opportunities for the United Nations,” Address to the United Nations General Assembly, Lisbon, Portugal, April 2016.

7 United Nations Security Council resolution 2282, *Post-conflict peacebuilding* (April 27, 2016), available from [http://undocs.org/S/RES/2282\(2016\)](http://undocs.org/S/RES/2282(2016)).

8 Ibid.

9 UN General Assembly resolution 70/262, *Review of the United Nations peacebuilding architecture* (April 27, 2016), available from <http://undocs.org/A/RES/70/262>.

10 John Galtung, “Violence, Peace, And Peace Research,” *Journal of Peace Research* 6, no. 3 (1969): 183

11 Paul Diehl, “Thinking about Peace Negative Terms versus Positive Outcomes,” *Strategic Studies Quarterly* 10, no. 1 (2016): 3-9.

12 United Nations and World Bank, “Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict,” Washington, DC: World Bank (2018), <https://openknowledge.worldbank.org/handle/10986/28337>.

13 Ibid.

The connection between prevention and development was also reaffirmed in the comprehensive and people-centered 2030 Agenda for Sustainable Development, which was described by the SG as “the blueprint of the common vision of society towards which the world is trying to move.”<sup>14</sup> The Sustainable Development Goals (SDGs) recognize that to leave no one behind, development policies cannot focus only on economic issues but need to address a diversity of issues including education, health, and human security, among others. Particularly important to this multidimensional and holistic approach to development is SDG 16, which calls for the international community to work to “Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels.”<sup>15</sup> SDG 16 is pivotal, as it recognizes that without peace, stability, and good governance based on the rule of law, development will not be inclusive and will not be sustainable. But beyond this goal, the SDG agenda covers many of the socioeconomic and environmental issues that put societies at risk of violent conflict, including economic, social, and environmental inequalities, poor natural resource management, and climate change.

Discussions on prevention, then, have pushed to broaden its definition, and by doing so have extended the timeframe in which prevention takes place, diversified the actors involved, and multiplied the types of tools available for prevention. One could thus see prevention as a continuum, with violent conflict on one end and positive peace at the other. Prevention efforts at every stage work to prevent the pendulum from swinging closer toward violent conflict. Therefore, prevention takes place at every point of the continuum, as gains made toward positive peace can be easily reversed and therefore require permanent and intentional work to maintain. Prevention in such terms connects the work of different actors along this continuum, even those actors that would not traditionally think of themselves as having a prevention mandate.

These processes and frameworks place the principal responsibility of prevention on member states, making them the party obligated to “identify, drive, and direct priorities, strategies, and activities.”<sup>16</sup> Prevention and sustaining peace are national projects that need to be adjusted to fit national and local contexts.<sup>17</sup> National ownership of prevention and sustaining peace can help make these agendas more legitimate and sustainable. Moreover, considering how prevention and sustaining peace can be incorporated into national planning and policy processes can help member states take ownership of these agendas, as well as reflect on how to set their own national targets and incorporate these efforts into existing commitments like the 2030 Agenda. One of the primary challenges in these efforts will be what a High-Level Independent Panel on Peace Operations (HIPPO) report describes as the “primacy of politics,” that is, the need for political solutions and the political will of member states to pursue this prevention agenda.<sup>18</sup> In this sense, sovereignty claims should not be used to absolve governments from their international commitments.

Beyond their domestic responsibilities, member states can keep this agenda relevant at the global level. Resolution 72/276, adopted on April 30, 2018 during the High-Level Meeting on Peacebuilding and Sustaining Peace, is a good first step, as it requests reports from the secretary general at the seventy-third and seventy-fourth sessions of the General Assembly. Beyond this, member states can make conscious efforts to report on their prevention efforts in global and regional fora and encourage other member states to do so as well.

<sup>14</sup> United Nations General Assembly, *Peacebuilding and sustaining peace: Report of the Secretary-General*, A/72/707 (January 18, 2018), available from <http://undocs.org/A/72/707>.

<sup>15</sup> United Nations General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development*, A/70/1 (October 21, 2015), available from [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E).

<sup>16</sup> Cedric de Coning, “Sustaining Peace: Can a New Approach Change the UN?” International Peace Institute Global Observatory, April 24, 2018, <https://theglobalobservatory.org/2018/04/sustaining-peace-can-new-approach-change-un/>.

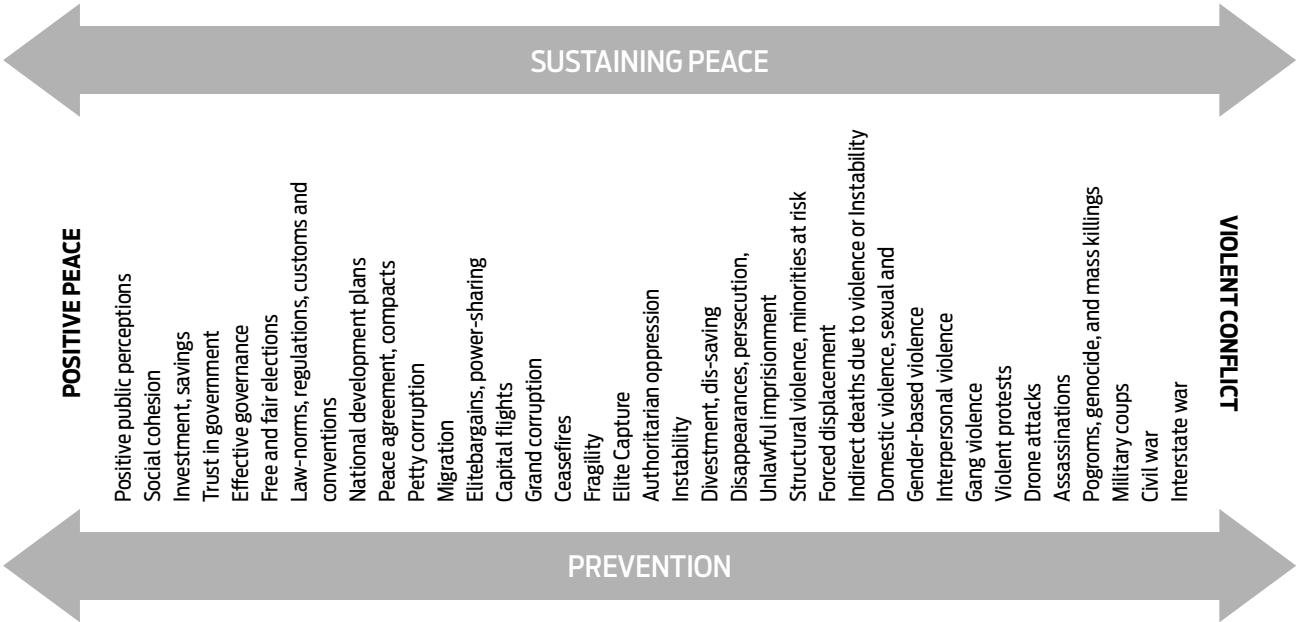
<sup>17</sup> Ibid.

<sup>18</sup> United Nations, *Report of the High-Level Independent Panel on United Nations Peace Operations*, (June 16, 2015), available from: [https://reliefweb.int/sites/reliefweb.int/files/resources/HIPPO\\_Report\\_1\\_June\\_2015.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/HIPPO_Report_1_June_2015.pdf)

The UN and the international community, then, can provide guidance, assistance, and support to member states in their prevention efforts. Beyond that, the UN is also responsible for holding member states accountable and pushing them to fulfill their international obligations and commitments to these frameworks. Prevention, therefore, will require engagement at all levels—global, regional, national, and local—with primary responsibility placed at the national level.

This broader understanding of prevention also means that stakeholders at the global, regional, national, and local levels—who may not necessarily have prevention at the heart of their mandate—will need to reflect on how their work contributes to prevention. Ideally, this will need to go beyond simply stating that their missions encompass prevention, but rather should involve pushing for an honest consideration of how their work can contribute to mitigating some of the risks factors that can lead to conflict. For example, when considering how education fits into prevention, it would be easy to simply state the benefits that education has on societies. But thinking of education in terms of prevention would require an exercise in identifying some specific risk factors—for example, economic exclusion, ethnic exclusion, or gender exclusion—and designing a long-term plan for how the education system can help reduce these risks. Such an exercise might, for example, lead to redrawing school districts so that schools’ populations reflect the demographics of society as a whole, providing scholarships for students to attend certain schools, or designing curricula that tackle biases within a certain community. Intentionality should be at the heart of prevention in all sectors and at all levels; otherwise, prevention will not go beyond discourse.

There are clear strategies behind Guterres’ push for an all-encompassing prevention plan that serves as the connecting thread within the UN system. These include extending the timeframe in which prevention efforts take place, diversifying the actors involved, broadening the tools available, and understanding that prevention needs to focus on the multiple and interconnected risks that can lead to conflict. However, translating prevention from a strategy to a concrete plan of action involving the UN system and national actors (both state and nonstate) will require significant changes both in culture and practice.



This table is based on a figure in a 2017 Stockholm International Peace Research Institute (SIPRI) report labeled “A violence-peace spectrum and manifestations of violence and peace,” having added the arrows on “sustaining peace” and “prevention” to help visualize some of the arguments made throughout this paper.<sup>19</sup>

<sup>19</sup> Stockholm International Peace Research Institute, *SIPRI Yearbook 2017: Armaments, Disarmament and International Security*, (2017), available from: <http://www.sipriyearbook.org/>

## WHAT IS BEING PREVENTED?

In the fields of disaster risk reduction (DRR), nuclear nonproliferation, and public health, there is conceptual clarity as to what is being prevented, making the assessment and evaluation of prevention efforts methodologically and conceptually easier. Disaster risk reduction aims to prevent, reduce, and mitigate the vulnerabilities that put people at risk of natural hazards as well as the potential adverse impact of these events. A clear understanding of what is to be prevented in the field of DRR allows practitioners to identify measurable efforts and interventions that lead to the reduction of risks vis-à-vis natural hazards. DRR efforts maintain at their core that while natural hazards are inevitable, efficient and informed prevention work can keep them from becoming natural disasters.

Similarly, the field of nuclear nonproliferation stems from the international community's aim to prevent the spread of nuclear weapons in reaction to the use of atomic bombs in Hiroshima and Nagasaki. The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) stresses as its goal the "prevention of the wider dissemination of nuclear weapons" and further breaks this down in Article III where it highlights the objective to prevent the "diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices."<sup>20</sup>

The field of public health works to prevent disease and injury. Prevention is divided into four different levels to distinguish the varying goals and tools available at each of these levels. At its broadest understanding of prevention, public health works toward primordial prevention, which strives to address the socioeconomic and environmental factors that can lead to disease. Primary prevention addresses the direct factors that can lead to disease or injury. Once a disease or injury is detected, prevention is divided into secondary prevention—early efforts to prevent the escalation or further deterioration of a patient's health once the disease is detected—and tertiary prevention, which focuses on rehabilitation and recovery.

Prevention in the fields of disaster risk reduction, nuclear nonproliferation, and public health is clearly defined. In these fields, there is conceptual clarity concerning what is to be prevented, thus providing a certain guidance on how to operationalize prevention. Furthermore, a clear definition of prevention, which is shared and uncontested among stakeholders, and an outline of what is to be prevented help establish a baseline, methods for measurement and evaluation, and guidelines for understanding success.

The importance of defining prevention goes beyond semantics, as it helps determine the tools available, the actors that should be involved, a timeframe for prevention efforts, and the establishment of monitoring and evaluation mechanisms. If the UN hopes to succeed in its prevention efforts, there will need to be a reflection on how to reconcile this broadly understood prevention as well as an understanding of what is to be prevented, how it should be prevented, who is to prevent it, and when it should be prevented. Without clear answers to these questions, it will be difficult to evaluate the successes and failures of prevention. A deeper and more definite understanding of prevention is necessary in order for it to be operationalized and translated into clear policies and programs. One possibility would be to consider what prevention means at different moments of the prevention continuum, meaning determining which tools are available and which actors have the most relevant mandates related to prevention. Working along the prevention continuum should make prevention efforts fluid and facilitate coordination and cohesion between different actors. There is strategic reasoning behind the SG's broadly understood prevention agenda, but it requires further reflection for it to materialize into concrete action across the prevention continuum.

For member states, prevention will mean different things depending on the national and local context. Defining prevention based on the risks and vulnerabilities at the national level can help provide a foundation for this prevention

---

<sup>20</sup> United Nations, *Treaty on the non-proliferation of nuclear weapons*, (July 1, 1968), available from: <https://www.un.org/disarmament/wmd/nuclear/npt/text>



agenda and focus it on national needs. Again, thinking about what needs to be done at different points along the prevention continuum depending on what is happening in each country can serve as guidance for determining what these prevention efforts will look like, what tools are available, and who the actors in charge will be. Reviewing existing national strategies on a diversity of issues can help identify key areas of focus as they relate to prevention. The recommendations made to member states by the Human Rights Council during the Universal Periodic Review (UPR) can serve as a guide, as they outline existing commitments made by governments in different areas, including in relation to specific groups (women, ethnic minorities, persons with disabilities, etc.) or specific issues (education, access to justice, discrimination, etc.) The UPR analysis can feed into this reflection and also help identify the groups that are being “left behind.”

## WHEN SHOULD PREVENTION HAPPEN?

Prevention efforts in these three fields strive to be permanent, create systems of prevention, build resilience and coping mechanisms, and prepare communities and individuals to prevent crises as a first goal. This requires dedicated resources and the political will to focus on permanent prevention, even when there are still remnants of “crisis thinking.” If crises do arise, sustained efforts over time in these three fields should help contain them and mitigate their impact. Prevention in DRR does not only happen in the wake of a hurricane; rather, continuous prevention is necessary to tackle vulnerabilities and risks that would put people in danger were a hurricane to materialize. Similarly, prevention in public health begins before there is an injury or disease to cure, as it focuses on underlying health and behavioral risks that make a population more prone to illness or injury. Similarly, prevention in nuclear nonproliferation takes place before there are any indications of enrichment, operating in a space before there is risk of nuclear weapons. Making prevention a permanent effort is important because, for starters, it allows for a broader timeframe to work with. Thus, there is also more margin for error. More importantly though, it also allows for more policy options and tools for carrying out prevention efforts.

Primary prevention in public health focuses on improving the overall health of the population before there is a diagnosis, aiming to promote healthy lifestyles so that the likeliness of disease is reduced. For example, primary prevention interventions might focus on providing information to communities on the risks of carcinogens and how to avoid them. Contact with carcinogens does not necessarily mean that a person will develop cancer, but it is a contributing factor that may lead to the disease. In addition, since carcinogens can be difficult to avoid once they are in the environment, permanent prevention would focus on reducing the production of carcinogens in an ongoing way to prevent them from becoming part of the environment in the first place.

Prevention in reaction to early warnings often comes too late. The UN thinks of prevention in broad and permanent terms, yet the organization’s efforts to operationalize this agenda continue to implement prevention in terms of crisis and conflict. This is reflected in the actors and tools that are included in the discussion on the operationalization of prevention, such as the Peacebuilding Support Office, Peacebuilding Commission, and the Peacebuilding Fund. The peacebuilding architecture was designed to respond to particular moments in the prevention continuum when interventions are needed to keep moments of fragility and crisis from further deteriorating and escalating into violence. While the peacebuilding architecture has a pivotal role to play in prevention, prevention should not be limited to these particular moments. It instead needs to be a permanent effort. If the SG’s understanding of all-encompassing prevention is to become a reality, prevention should be understood and implemented throughout the continuum. By addressing the structural causes of conflict, the prevention spectrum broadens and creates space for a diversity of actors and tools to be involved.

All-encompassing prevention means that member states need to think about prevention throughout the prevention continuum, even when there is no crisis on the immediate horizon. Again, depending on the national context, prevention

could mean different things. Identifying risks and vulnerabilities at the national level allows member states to design prevention-focused programs. Like sustaining peace, prevention is a universal agenda that recognizes that even the most solid efforts to create positive peace can be reversed and countries should be conscious of this. Thus, prevention is not limited to fragile, conflict-affected, or post-conflict settings. The benefits of permanent prevention are many, including a broader set of policy options and a more flexible timeframe.

## VERTICAL PREVENTION

Prevention in disaster risk reduction, nuclear nonproliferation, and public health happens at different levels, and efforts and responsibilities vary depending on the stakeholder in charge. At the global level, these three fields have specialized agencies within the UN system: the United Nations Office for Disaster Risk Reduction (UNISDR), the International Atomic Energy Agency (IAEA), and the World Health Organization (WHO). At this level, these UN agencies and member states set international norms and establish priorities at the global level to guide work at the regional and national level. For example, the WHO establishes guidelines for vaccinations, including required and recommended vaccines and vaccination schedules. These are then adopted and implemented by member states. Along similar lines, UNISDR supports and facilitates the implementation of the Sendai Framework for Disaster Risk Reduction, the latest action plan on DRR agreed to by member states. By providing technical assistance and support to member states, UNISDR serves as the focal point for DRR efforts at the international level.

The IAEA is tasked with “promoting the safe, secure, and peaceful use of nuclear technology” by supporting the implementation and monitoring of the NPT.<sup>21</sup> The agency was established to operationalize the implementation of this treaty, which outlines a series of safeguards on material accountability, physical security, and containment and surveillance. The IAEA is composed of two arms, the Secretariat, whose role is primarily scientific, and a Board of Governors that acts upon the findings of the Secretariat. The IAEA, according to its Statute, can refer issues of noncompliance to the Security Council (SC). This makes the IAEA different from UNISDR and WHO, as the agency has what could be described as “teeth,” as an SC referral can result in sanctions and tangible consequences for member states that do not abide by their responsibilities as signatories to the NPT. While the three agencies have norm-setting powers, only the IAEA could be understood to have hard power, while UNISDR and the WHO have soft power.

In all three fields, the primary responsibility for prevention lies with member states. Signatories to the NPT commit to not seek or develop nuclear weapons, to not transfer nuclear weapons to non-nuclear weapon states, and to work toward disarmament. Implementation of the NPT at the national level mostly consists of legislation to eliminate highly enriched uranium, to provide disincentives for reprocessing plutonium, and to promote efforts for disarmament. Along similar lines, DRR and public health efforts at the national level include the strategic passing of legislation to reduce risks of disease and disasters as well as the use of specialized national health and disaster management agencies to implement and operationalize prevention efforts. The main difference between these three fields with regard to the duties of member states has to do with consequences; only failure to fulfill their responsibilities under the NPT will trigger a clear set of actions at the global level.

At the local level, actors work to implement and enforce global norms and national legislation. Implementation is guided by local needs and the tools available to stakeholders at this level. In the field of public health, local actors are those who are closest to the communities in which disease and injury are intended to be prevented; therefore, their local perspective is pivotal for implementation. An example from the field of public health includes the role of local police in implementing road safety regulations, including issuing tickets for speeding or reckless driving. In DRR, local

---

21 International Atomic Energy Agency, *Statute*, (October 23, 1956), available from: <https://www.iaea.org/sites/default/files/statute.pdf>

stakeholders are charged with carrying out assessments of risk and in designing preparedness plans and responses. Because of the highly technical and complex nature of nuclear nonproliferation, work at the local level is often limited. In all three fields, education efforts for understanding risks are vital for prevention.

In all three fields, the global, national, and local levels interact with each other. While the main responsibility rests with member states, global actors can support and accompany national processes that include a diversity of actors, both state and nonstate, as well as national and local. In DRR and public health, interactions between different levels also serve as a form of peer pressure, as successes or failures at the local and national level are often discussed at the global level, and efforts to carry out these agendas will be questioned and challenged in global fora. In the case of nuclear nonproliferation, the system at the global level—that is, the IAEA and the SC—serves as the watchdog of the NPT and its implementation.

In the field of prevention, similar structures and interactions between levels exist. If prevention is understood more specifically as preventing violent conflict, the UN's peace and security architecture serves as the global structure through which member states set norms and guidelines and the Security Council as the watchdog and enforcer, with sanctions being one of the principal tools used to close the enforcement gap. Even if prevention is understood in its all-encompassing sense, these structures at the global level already exist and interactions with the national and local levels are similar in nature. UN agencies within different fields set norms and guidelines at the global level and provide support at the national level for implementation and enforcement. These interactions between the global, national, and local are based on specific mandates and agendas, and considering how these contribute to broader prevention efforts can make these efforts more strategic and intentional.

The clearest example of this relationship between the global, national, and local is the 2030 Sustainable Development Agenda, established at the global level as a universal agenda, with member states being responsible for the implementation and the adaptation of the agenda to serve the needs of communities at the national and local level. The SDGs provide a blueprint for prevention and can be adapted and coordinated across levels to tackle the root causes of violence, instability, inequality, and injustice. Issues related to peace, inclusion, and justice serve as a connecting thread across the SDGs. While the implementation of the 2030 Agenda is the responsibility of member states, cooperation with the UN and local communities is pivotal for the agenda's goals to become a reality.

At the national level, member states are responsible for taking ownership of the prevention and sustaining peace agendas and adapting them to respond to their national contexts and needs. As suggested by the UN–World Bank report, this could begin by identifying horizontal inequalities and patterns of exclusion as an exercise to help set national priorities. The SDGs are a useful tool that can serve as a framework for member states to define and pursue their prevention goals. These efforts should not rest solely at the national level, but should also be aligned with work at the local level and in cooperation with relevant nonstate actors at both the national and local level. Similarly, national priorities should be implemented with local contexts and needs taken into account and with the involvement of local state and nonstate actors. These processes should avoid exclusive, top-down approaches and encourage bottom-up channels that help feed local needs into national and global priorities, in order to build upon and strengthen capacities at the local level.

While the principal responsibility of prevention and sustaining peace rests with member states, the UN should support and encourage these efforts through its work. This should include conversations between UN Country Teams and national governments on priorities and channels through which the UN can support prevention efforts and provide technical and programmatic expertise when needed. However, the UN's role should not be limited to this, and the UN should be willing and ready to speak up and act when member states are not fulfilling their responsibilities. Creating opportunities for member states to share experiences on prevention and showcase their national efforts could serve as an incentive for national governments to take on and adopt this prevention agenda; for example, an international

forum on prevention could push member states to take this agenda more seriously. Additionally, this could present an opportunity for learning and experience sharing between member states.

At each level, identifying who the leading actors are, what tools and instruments are available, and what the processes and results are, as well as the timeframe in which prevention needs to take place, can help in the operationalization of prevention. Similarly, such an exercise can help establish who the main actors are at the global, national, and local levels, which would help make coordination and transitions across levels easier. This exercise should go hand in hand with defining prevention at different stages of the continuum, as this will help determine the who, what, when, etc. of implementation and operationalization. Vertical prevention can help facilitate the coordination of efforts, the availability of shared analysis and assessments, and the establishment of shared goals and outcomes. At the same time, thinking about prevention in vertical terms can help actors across levels support each other by identifying weaknesses and strengths and, by doing so, find partners that can help fill gaps in prevention if needed.

## HORIZONTAL PREVENTION

Beyond different actors' functions at different levels in prevention, a lesson from the field of DRR and public health is that prevention is "everyone's business." In both these fields, different actors at the same level play a role in prevention, even when these stakeholders do not seem like the most obvious actors to be carrying out prevention efforts. However, understanding what each of these different actors can bring to prevention efforts helps to clarify why prevention should truly be "all-encompassing" by tackling risks from different angles and perspectives. Identifying how actors like the private sector, academic institutions, and civil society can contribute to prevention is pivotal for greater success. This means thinking about prevention structures horizontally.

In the field of DRR, for example, the private sector has a pivotal role to play in areas of innovation, infrastructure, and risk-sensitive production. Innovation and technology have been essential in the development of early-warning systems and risk assessment. Similarly, infrastructure such as roads, buildings, levies, airports, etc. require sound engineering and design that make them disaster resistant. Civil society actors like local chapters of the International Federation of Red Cross and Red Crescent Societies can help with trainings and preparedness efforts to make sure that local populations understand the risks at hand and what should be done in the case of an emergency. Academic and research institutions can provide expertise and evidence through DRR-focused work to better understand what risks are present, what does and does not work, and what challenges are at hand, and in doing so help inform policy making. By tackling prevention efforts from different angles, horizontal prevention allows actors that would not have traditionally been considered part of the prevention agenda to participate and bring new ideas to the discussion.

The prevention community in DRR has actively engaged with the private sector. The private sector, ranging from small, individually owned businesses to national and global enterprises, is a central actor in prevention. Collaboration between the public and private sectors can help leverage resources, knowledge, skills, and energy to support prevention activities. The importance of engaging the private sector lies in the fact that this sector owns, invests in, builds, operates, and maintains most infrastructure. The private sector could also be a great advocate for prevention because of its direct relationship with consumers and suppliers and because of the number of people employed by private companies. Businesses are heavily involved in DRR commercially as well, providing engineers, consultants, software designers, insurers, transporters, and suppliers of goods and services of many kinds.<sup>22</sup> The private sector can play an important role in the provision of infrastructure and structural mitigation measures. An example of partnerships with the private

---

<sup>22</sup> John Twigg, "Disaster Risk Reduction," Overseas Development Institute, Good Practice Review 9 (2015), <https://odi.hpn.org/resources/disaster-risk-reduction/>.

sector for DRR includes the design of public-private insurance policies, where insurance companies agree to reduce households' premiums when they take certain steps to protect their property. Such efforts are in the interest of all stakeholders as they reduce disaster-related risks and also help insurance companies maintain their profits.

Thinking of prevention horizontally can also help us understand the roles that different agencies at the UN have when it comes to prevention. If prevention is the connecting thread that brings together the work of the UN system's various parts, thinking of how each agency fits into the prevention continuum can help in establishing how to operationalize prevention. Determining how various UN funds and programs, like the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the United Nations Population Fund (UNFPA), the United Nations Human Settlements Programme (UN-Habitat), the United Nations Children's Emergency Fund (UNICEF), and the World Food Programme (WFP), through their mandates and missions, contribute to prevention efforts can also help in defining prevention more specifically as it relates to the work of these agencies in different fields. Such efforts can help tackle the many interconnecting issues that lead to crisis and human suffering. Envisioning these efforts horizontally also helps outline and clarify how the work of these different actors interacts and interconnects with that of other agencies, so that prevention efforts are complementary and coordinated rather than repetitive or redundant. For horizontal prevention to work at the global level, UN agencies need to design efforts based on joint analyses that help establish common goals and objectives. At the same time, this approach should help break down the silos that have characteristically guided the work of the international community, by making agendas more fluid and organically connected to the work of other agencies.

The SG's vision on prevention is holistic and system-wide, and in the long term responds to the need to make societies stronger and more resilient. However, there is still a lack of strategy regarding how this vision will impact the work of different agencies and programs and how it will be coordinated throughout the UN system. There needs to be a reflection at the agency and program level on how the work of each UN body feeds into this prevention agenda, as well as clear strategy and intentionality. Otherwise, there is a risk that this renewed push for prevention will not progress from discourse to action. When reflecting on how the mandate of each agency and program can contribute to the prevention agenda, the SDG framework could serve as a useful tool for identifying, monitoring, and evaluating prevention efforts and can help provide data that would allow the system to evaluate its progress and impact. One of the challenges for the UN in carrying out the SG's prevention vision, which has been highlighted over the years by scholars and practitioners alike, is the system's continued struggle to overcome organizational silos. If prevention is to be the thread that connects the work of the UN across the system, the breakdown of silos and a real change in the UN's work culture will be necessary.

Member states can consider establishing a national strategy on prevention and sustaining peace that incorporates a variety of ministries and departments. Achieving a similar level of understanding among all actors is critical. For instance, an interministerial group on prevention can help establish a plan of action by identifying the role of each ministry as it relates to prevention. As mentioned earlier, for this to be efficient, there needs to be intentionality and strategic thinking on how different actors contribute to the broader prevention goals established at the national level. This can help coordinate institutional mechanisms and shared policy analysis and the identification of policies and programs across sectors that positively impact the specific issues of concern related to prevention at the national and local level. This would require each ministry to reflect on risk factors and design interventions to tackle them. Such an exercise can help align national and subnational plans and policy-making processes with prevention and sustaining peace.

In Bulgaria, for example, the government adopted the Strategy for Educational Integration of Children from Ethnic Minorities. This strategy has four aims: supporting the comprehensive socialization of children and students from ethnic minorities; ensuring equal access to quality education for children and students from ethnic minorities; promoting intercultural education as part of the process of modernizing the country's education system; and

preserving and developing the cultural identity of children and students from ethnic minorities.<sup>23</sup> The strategy responds to an evaluation carried out by the Ministry of Education, which recognized that institutional and human capacity supporting the integration of ethnic minority children was lacking, that the existing curriculum failed to include the history and culture of these minority groups, and that there was no institutional capacity to facilitate the learning of ethnic languages. This shows how the education system can be used strategically to address some of the underlying factors that could eventually lead to conflict.

Horizontal prevention is not limited to state actors, but should also consider the role of nonstate actors in these efforts. Prevention should be “everyone’s business.” Examining the role different actors can play in prevention would diversify the number of actors who are contributing to prevention efforts. Again, this requires discussions with different actors to identify what comparative advantage they can bring to the prevention agenda and reflections on how to intentionally take on prevention within their own agendas and interests. Some of the actors that should be engaged in prevention include:

- **Civil society:** an organized, strong, inclusive, and representative civil society is an imperative actor in prevention. Civil society organizations play a pivotal role in prevention, as they are often close allies of local communities, they raise awareness about key issues, and they can advocate for changes in policy. Civil society organizations often serve as watchdogs at the local level and are the first to raise the alarm when conditions deteriorate. Civil society organizations should be actively engaged in prevention discussions and involved in decision-making and policy-making processes.
- **Academia:** effective prevention requires a better understanding of complex social, cultural, economic, and political processes taking place at the national, regional, and international level. Academics and researchers are often the best positioned to provide such nuanced analyses, which is pivotal in prevention. Academics and researchers are experts because of their training but also because of their environment; they often have a much clearer and informed understanding of what is happening.
- **Private sector:** engagement with the private sector in the field of prevention has often been limited to conflict mitigation, focusing on how to reduce conflicts risks as they relate to business activities, for example in the extractive industries or agribusiness. Yet the private sector, as a main developer of technology and innovation as well as a principal holder of resources and capital, can play a pivotal role in all areas of prevention. At the same time, as a key economic player, the private sector can influence public policy in favor of strategic prevention efforts. Engagement with the private sector should be proactive and intentional, including an agenda designed so that private sector stakeholders actively participate in prevention efforts.
- **Scientific community:** technical and scientific expertise can help overcome some of the challenges that communities face that contribute to crises and conflict. Addressing issues like water and food scarcity, climate change, and natural resource management, among others, could help make societies more resilient if done with prevention in mind. However, these are actors that are rarely involved in conversations about prevention, excluding opportunities for scientific and technological advances from discussions about how best to implement prevention measures.
- **Religious organizations:** the trust and proximity between religious organizations and the communities in which they work are pivotal assets when it comes to prevention. Religious organizations are essential partners in prevention work, as these organizations often have the necessary relationships with communities to be able to identify and mitigate risk factors.

Local actors with different interests, mandates, and expertise will often find themselves at the forefront of prevention efforts when conditions deteriorate. These actors, be it civil society organizations, private businesses, or religious organizations, might be

<sup>23</sup> “Strategy for Educational Integration of Children from Ethnic Minorities,” European Commission, Education and Training, [https://ec.europa.eu/education/compedium/strategy-educational-integration-children-ethnic-minorities\\_en](https://ec.europa.eu/education/compedium/strategy-educational-integration-children-ethnic-minorities_en).



carrying out prevention efforts and be the first to respond to a crisis without necessarily having prevention as part of their mandate. However, in this new mindset of all-encompassing prevention, an understanding of how these different actors contribute to prevention is imperative. It is also important to think about how these different stakeholders can carry out their agendas with a peace-sensitive mindset and how they can contribute to prevention efforts throughout the prevention continuum.

An example of how this could work is the process carried out in Germany by the German Council for Sustainable Development (RNE), which is composed of fifteen members representing different sectors of society and is renewed by the German chancellor every three years. The RNE is an advisory body to the German government that focuses on sustainable development policy. The RNE also tries to foster dialogue between different stakeholders and the general population on issues related to sustainable development. For example, the RNE organized a series of engagement discussions for various stakeholders on different issues of concern, including corporate responsibility and energy transformation to help build national consensus and set a roadmap to advance the 2030 Agenda.<sup>24</sup> Similar structures that bring together stakeholders from different sectors of society can help advise national governments on prevention agendas and outline how different sectors can contribute to overall national prevention and sustaining peace goals.

## TARGETED PREVENTION

The fields of public health and disaster risk reduction recognize socioeconomic and environmental determinants that contribute to making people vulnerable to disease and hazards, respectively. Both fields identify these determinants as factors that need to be addressed within their broader prevention goals in order to reduce risks. This results in a strategic approach to prevention that is operationalized through targeted prevention efforts. In the case of public health, research has shown that disparities in health outcomes are often a result of disease disproportionately affecting certain populations. Communities that are marginalized, excluded, and disenfranchised are more likely to develop certain diseases because of environmental factors. Targeted prevention in the public health field encompasses specific efforts to make sure that these communities are reached through interventions designed to meet their specific needs.

Disaster risk reduction operates under similar assumptions, recognizing that socioeconomic and environmental determinants make certain populations more vulnerable to natural disasters, therefore putting them at increased risk. DRR works with these populations to reduce their vulnerabilities, many of which are not directly related to natural hazards but still put them at greater risk. By confronting broad issues like land tenure, construction codes, and food security, DRR aims to address structural issues that, when combined with natural hazards, tend to put people at greater risk. In the fight against HIV/AIDS, public health initiatives often focus on populations most at risk rather than the population in general, namely those who have less access to treatment and have lower levels of viral suppression. HIV/AIDS prevention is an example in which targeted prevention efforts yield major benefits at the population level by reducing viral transmissibility in the aggregate.

Targeted prevention helps to address the vulnerabilities of those most at risk through strategic interventions that focus on risk factors resulting from broader, more complex, systemic issues. Considering the limited resources—both financial and human—that are available for prevention efforts, targeted prevention could serve as a cost-effective way to reduce vulnerabilities. In the broader definition of prevention, targeted prevention is at the heart of the 2030 Sustainable Development Agenda, which strives to “leave no one behind.” By working with those who are further behind, the SDGs target those who are most vulnerable and can be identified thanks to the indicator framework that was designed to collect disaggregated population data. This allows interventions to be designed with these populations in mind so that they can be prioritized and targeted first in order to reduce vulnerabilities and risks.

---

<sup>24</sup> See: German Council for Sustainable Development, <https://www.nachhaltigkeitsrat.de/en/>

In more pressing prevention interventions that strive to contain a crisis from escalating into violence, targeted prevention can help strategically utilize limited resources during a pivotal moment by working with the specific communities that are most at risk. Rather than thinking of prevention interventions that are uniform and homogenous in reach and audience, targeted prevention puts the most at-risk communities, where violence could more easily erupt and spill over to other communities, at the center of prevention efforts. This can only work if there is a clear understanding of the conditions on the ground and early warnings are followed up by early-action targeting such communities. In principle, the idea of targeted prevention means that not every community needs to be part of prevention efforts, but rather such efforts should focus on key communities. This approach does not need to be limited to local interventions but can also identify, in times of urgency, stakeholders in key groups or institutions that need to be targeted by direct prevention efforts to prevent crises from escalating into violence.

While work at the local level is important, targeted prevention at the political level is imperative to keep crises from escalating. At the level of the UN system and international community, targeted prevention during times of crises would require prevention efforts to be concentrated in the highest-risk regions and countries. Close monitoring and early warning systems would provide sufficient information on the conditions at the country and regional level to allow for prevention efforts to take place before crises emerge. The UN system—through the SG's office and its network of special advisors and representatives as well as the organization's access to key political actors through its regional and country offices—is uniquely placed for this type of targeted prevention. Member states should support these types of efforts in order to push for a UN that prevents crises rather than solely responding to them.

Member states are specially equipped to carry out targeted prevention because of their unique understanding of the social structures that determine the political, social, and economic dynamics within their borders, as well as the ways in which these forces are articulated at the national and local level. Member states can closely monitor these articulations and identify cleavages or ruptures that might lead to crisis or violence. This means that, at a given moment, strategic targeted interventions to address specific issues related to a particular group, community, or region can help contain problems and prevent them from escalating and spreading. As the UN–World Bank report notes, targeted prevention needs to take place “before grievances harden and the threat of violence narrows the choices available.”<sup>25</sup>

An example of targeted prevention would be the work of the National Network for Safe Communities (NNSC) in the United States, which works in historically disadvantaged communities of color where violence is concentrated, particularly among young men. This organization's Group Violence Intervention (GVI) strategy is based on the fact that only a small number of identifiable groups engage in violence, while most people in these communities are unlikely to become victims or victimizers. Therefore, GVI's work is specific to these communities, directly targeting certain group members. The strategy works through partnerships with law enforcement, community members, and social service providers, each playing a specific role in violence interruption efforts.<sup>26</sup> GVI's work shows that, in certain cases, prevention efforts need to target particular issues within certain communities or groups.

## STRUCTURAL PREVENTION

Addressing the structural causes that put people at risk of natural hazards and disease are at the core of DRR and public health efforts. Recognizing vulnerabilities resulting from social, economic, institutional, and environmental conditions as the main drivers of risks, both DRR and public health prevention efforts work to address some of these as a means

---

<sup>25</sup> “United Nations and World Bank, “Pathways for Peace.”

<sup>26</sup> National Network for Safe Communities at John Jay College, “Group Violence Intervention: Issue Brief,” <https://nnscommunities.org/uploads/GVI-Issue-Brief.pdf>.

of reducing risk. In public health, primordial prevention addresses structural issues that make people more susceptible to certain diseases or injuries. For example, when confronting issues related to road safety, public health interventions do not simply focus on reducing car accidents. Instead, approaches are broad and focus on structural causes that contribute to car accidents, including, for example, vehicle safety (airbags, seatbelts, antilock braking systems, electronic stability systems, etc.). At the same time, stricter legislation on driving under the influence as well as higher penalties for speeding and other dangerous road behavior contribute to the prevention of road accidents, injuries, and deaths. Public information campaigns carried out by organizations like Mothers Against Drunk Driving (MADD) also help support these efforts. While the engineering of cars and lax laws do not in themselves directly lead to road injuries or deaths, addressing these structural issues helps create an environment that is more conducive to road safety.

Similarly, DRR recognizes that many of the vulnerabilities that put people at risk of natural hazards are a result of structural conditions. By addressing some of these vulnerabilities through DRR programming, the aim is to reduce risk and build people's resiliency in the face of natural hazards. Such efforts include, to give but one example, building disaster-proof infrastructure through partnerships between the private and public sector. Addressing land use and natural resource management issues through sound legislation is another tool for reducing disaster risk. Along these same lines, resolving some of the social and economic conditions that put people at risk of disasters is also a form of prevention in the DRR field. In DRR, structural prevention has often tried to address issues related to access to land and land ownership, as prevention and mitigation efforts have proven difficult to implement when people do not own their land or live in informal settlements. Trying to formalize land titles is an important step in DRR, so such efforts need to be conscious of land ownership schemes at the local level, including collectively held land.

Structural prevention tries to address the underlying factors that create a breeding ground for crisis and conflict. Tackling issues related to inequality, marginalization, lack of inclusion, weak institutions, and limited political participation, among others, can help prevent crises and violence. Such prevention efforts focus on building societies that are resilient and able to manage conflict without resorting to violence. These prevention efforts also fall in line with the sustaining peace resolutions. The Sustainable Development Goals constitute a clear framework that outlines a plan of action for addressing the vulnerabilities of people and societies that increase their risk of crisis, conflict, and human suffering. The SDGs provide a snapshot of the type of societal ills that need to be addressed to achieve sustainable peace. However, the 2030 Agenda does not provide a specific roadmap for how to accomplish these goals.

Structural prevention helps broaden the scope of prevention and opens up the space for different actors at different levels to help tackle the multiple, interrelated factors that can lead to crisis and conflict. Just as importantly, structural prevention establishes a broader timeframe for prevention efforts. At the global level, this means that the UN can engage its different agencies to strategically work toward medium- to long-term prevention goals. Supporting the implementation of the SDGs at the national level creates the space for the UN system to work toward structural prevention in partnership with member states.

While the SDGs were not developed with prevention in mind, they as a whole aim to resolve many of the underlying structural causes of conflict. The SDGs thus have the potential to work as a long-term prevention agenda. Member states should consider how to build the SDGs into their national development plans, based on the local development needs of different regions and communities. By assigning responsibilities across government sectors, the 2030 Agenda and its goals can be adopted by different ministries and agencies in order to deliver on these common goals. The SDGs create an opportunity for engagement with different sectors, and bringing these different actors to the table can help states to capitalize on the comparative advantage of each player with regard to long-term prevention goals.

Structural prevention should consider factors that go beyond the social and economic and examine how the use of physical space can contribute to prevention and sustaining peace. One such consideration is the way that urban planning and design contribute to minimizing violence and building stronger communities. Studies have shown that

the way cities are planned and designed can have an impact on violence and crime prevention. For example, studies developed by a Harvard University professor have shown that creating spaces that are mixed, such as mixed housing for low, middle, and high-income families, contributes to the minimization of urban violence. This type of design, the author has found, helps develop not just neighborhoods but communities. Therefore, aligning spatial and social planning when considering structural prevention strategies can yield greater prevention successes.

## INDIVIDUAL PREVENTION

Prevention efforts are often designed to work at the local or national level; however, both the DRR and public health fields recognize the importance of working at the individual level as well, in order to change behaviors and understandings of risk. Public health initiatives not only aim to educate individuals on health risks but also help create the conditions so that decisions at the individual level are made with awareness of the risks at hand. An example of this would be the reduction of tobacco use. While much of this change was a result of a combination of efforts, including harsher legislation, increased awareness related to the health risks related to smoking also led to changes in individual behavior. These efforts need to go beyond education so that information results in concrete changes in individual behavior and decision making.

DRR works along similar lines by trying to change behaviors that put people at risk of natural hazards. By striving to transform people's understanding of risk and behaviors toward hazards, DRR tries to make individuals more resilient. These efforts are particularly important when it comes to, for example, evacuations in the wake of natural hazards. At the individual level, a clear understanding of the risks associated with natural hazards can be the determining factor in whether someone decides to evacuate or not, which can be pivotal for reducing risks. Like efforts in public health, this requires interventions that go beyond education and that create conditions that lead to safety-conscious decisions. Examples of these types of interventions include support in helping individuals design evacuation and communication plans for their families, which need to take into account their own priorities and vulnerabilities when planning an evacuation route, figuring out a place to stay, and knowing what to pack and what to leave behind.

Prevention efforts often work at the group level, such as those at the local, regional, national, and global level. Work at the individual level is much more difficult and expensive. However, prevention that strives to change behaviors needs to also work with individuals to change how they respond to challenges and crises. Prevention efforts at this level involve the promotion of certain attitudes, beliefs, and behaviors that give individuals the coping capacity to deal with crises and conflict. Some examples of such interventions include education and life skills training on how to manage stress and conflict. Similarly, such efforts can prepare individuals to better manage relationships at the family and community level; examples could include parenting or family relationship programs and peer programs that teach healthy problem-solving skills in the context of relationships.

Because of the challenges of prevention work at the individual level, engagement with a diversity of actors is pivotal. This requires thinking of partners beyond the usual suspects. Yes, formal and informal education should be central to prevention at the individual level, in order to provide the necessary skills and tools for decision making. Beyond the education system, though, how can other actors be engaged in these efforts? Engaging with the private sector, such as via trainings and workshops for workers on prevention skills, can open up previously unexplored opportunities in this area. Similarly, exploring the roles of media outlets and telecommunications companies in individual prevention efforts, such as in leading awareness raising campaigns, can provide an additional space for carrying out individual prevention.

An example of prevention efforts at the individual level include the Youth Peace Ambassadors program developed by the UN Mission in South Sudan (UNMISS). The program strives to train young local students in peace leadership values, hoping that they will become ambassadors for peace at their schools and in their local communities. UNMISS

organizes trainings and capacity-building opportunities for students, in addition to providing guidance and advising concerning their personal and scholarly development. Some of the trainings have addressed issues like conflict management, social cohesion, national identity, and youth leadership.

## CONCLUSIONS AND RECOMMENDATIONS

*The three fields examined in this study were built around the idea of prevention. All three fields have mixed records of success and clear areas where there needs to be improvement. For example, in public health, prevention efforts are often designed to reach populations that are already in well-off circumstances and often fail to reach marginalized communities most in need of these interventions. DRR sometimes fails to recognize the political and power issues that often keep people at risk of disaster. The field often describes itself as apolitical, which has resulted in a failure to recognize the primacy of politics and how this can hinder DRR efforts. Nuclear nonproliferation is heavily dependent on the good faith and collaboration of member states, so prevention efforts can only go so far when member states are not willingly avoiding the enrichment of uranium.*

*Despite these challenges, there are various takeaways from the fields of public health, disaster risk reduction, and nuclear nonproliferation that be applied to prevention efforts as a whole. Some of these are outlined below:*

### **Disaster Risk Reduction**

- *Prevention aims to reduce vulnerability and exposure in such contexts where, as a result, the risk of disaster is removed.*
- *Prevention strategies are a result of top-down and bottom-up approaches.*
- *Prevention is integrated within other agendas, including development planning and practice.*
- *Prevention builds on the value of multistakeholder involvement.*
- *Prevention is the primary responsibility of the state.*

### **Nuclear Nonproliferation**

- *Prevention is stopping the diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices.*
- *Prevention is based on strong norms that were set at the global level and agreed upon by member states and that have continuous support.*
- *Prevention is structured within systems of continued verification and auditing to deter diversion of nuclear material.*
- *Prevention focuses on strategic points within the nuclear fuel cycle.*
- *Prevention is the primary responsibility of the state.*

## **Public Health**

- *Prevention identifies four levels of intervention: primordial, primary, secondary, and tertiary.*
- *Prevention does not always have to target the population as a whole, but a strategically defined percentage can suffice in stopping the spread of diseases.*
- *Prevention in complex public health issues needs to address the many factors that lead to disease or injury.*
- *Prevention needs to be intentional and strategic.*
- *Prevention is the primary responsibility of the state.*

*Many of the lessons that can be learned from these fields can provide ideas about how to think about prevention in terms of the SG's goals and how to operationalize this agenda.*

**Prevention needs to be defined.** *The importance of defining prevention goes beyond semantics, as it helps determine the tools available, the actors that should be involved, and a timeframe for prevention efforts, as well as helping to establish monitoring and evaluation mechanisms. Defining prevention at different points of the prevention spectrum might be a way of reconciling the broadly understood prevention with the need to operationalize this agenda.*

**Prevention needs to be permanent.** *As the field of DRR proves, permanent prevention should address structural causes, vulnerabilities, and risks. Prevention at this stage allows a more diverse group of actors to partake in these efforts and creates space for tackling vulnerabilities and risks from a multidimensional approach. There are also more tools available for these efforts, as well as a longer timeframe.*

**Prevention is everyone's business.** *If prevention is to be all-encompassing, then the discussion on prevention needs to move beyond the usual suspects. This means that prevention is not limited to the UN's peace and security architecture but should also include agencies and programs that do not have prevention as a self-evident part of their mandate. This requires a reflection on how different UN entities can deliver on prevention outcomes. At the national level, because member states are primarily responsible for prevention, different actors and stakeholders, both state and nonstate, at the national and local level will need to be involved.*

**Prevention needs to be intentional.** *It is not sufficient for a UN agency or national government to say they are working on prevention. There is a need to define prevention within each actor's mandate and identify how these efforts fit within the prevention continuum.*

**Research and analysis should focus on what works in prevention and sustaining peace.** *Identifying the mechanisms, institutions, and social and economic processes that allow a community or state to jump back from, rather than succumb to, crisis would be a great contribution to prevention and sustaining peace. Better analysis that can help provide insight on resilience and coping capacity is pivotal for prevention efforts.*

*The SG should request that every agency and program of the UN system conduct an internal exercise on defining what prevention means within their mandate, how these efforts fit within the peace continuum, and how they will deliver on prevention and sustaining peace outcomes. Each of these UN bodies should consider producing a position paper that outlines their conclusions to be shared with the rest of the UN system.*



*The UN should consider a system-wide strategy on prevention and sustaining peace that will broaden the discussion beyond the peace architecture and permeate the work and mandates of the entire system, at headquarters and field stations alike.*

*At the country level, UN Country Teams should examine what the prevention and sustaining peace needs are at the national level and how the UN system can support these needs through its programming. These efforts can create space for discussion between national governments and the UN system, as well as other nonstate actors, to identify priorities and areas of concern.*

*Global or regional spaces should be established for member states to have frank discussions and share their experiences in support of identifying innovative prevention solutions. Opportunities for peer learning and lessons sharing, where national governments can show off their efforts on prevention while also creating a space for active engagement of a diverse group of actors, can serve as an incentive for member states to take ownership of this agenda and showcase their efforts.*

*At the national level, for prevention to be effective, there is need for:*

- Institutional mechanisms: national mechanisms that support the implementation of prevention and sustaining peace, shaped by needs at the national and local level and based on nuanced analysis of the challenges facing each member state.*
- Coordination: coordination at the national and local level (horizontal), as well as between the national and local level (vertical), that brings together efforts in prevention by different state and nonstate actors to help set common goals and outcomes as well as avoid repetition.*
- Integration: integrating prevention efforts into the work of different ministries and agencies and their agendas to ensure coherence between their mandates and overall prevention and sustaining peace goals.*
- Multistakeholder engagement: intentional efforts and strategies to guarantee multistakeholder engagement, including state actors, academic institutions, civil society organizations, private sector, religious organizations, etc.*

*Disaster risk reduction, nuclear nonproliferation, and public health have placed prevention at the core of their mandates and while their success records are mixed, these fields provide some insights on how to conceptualize and operationalize prevention. Prevention will continue to be a challenging endeavor for the UN and member states, since the SG's all-encompassing prevention agenda requires real cultural and organizational change, as well as a deep commitment at the global, national, and local level. Yet, it is clear that for this to happen, prevention will need to be permanent, intentional, and everybody's business.*

## REFERENCES

- De Coning, Cedric. "Sustaining Peace: Can a New Approach Change the UN?" International Peace Institute Global Observatory. April 24, 2018. <https://theglobalobservatory.org/2018/04/sustaining-peace-can-new-approach-change-un/>
- Diehl, Paul. "Thinking about Peace: Negative Terms versus Positive Outcomes." *Strategic Studies Quarterly* 10, no. 1 (2016): 3-9.
- Galtung, Johan. "Violence, Peace, And Peace Research." *Journal of Peace Research* 6, no. 3 (1969): 167-191.
- German Council for Sustainable Development. <https://www.nachhaltigkeitsrat.de/en/>.
- Guterres, António. "A UN of the Future to Effectively Serve all Member States."
- Letter from the Secretary General to United Nations Member States. May 31, 2017.
- Guterres, António. "Challenges and opportunities for the United Nations." Address to the United Nations General Assembly, Lisbon, Portugal, April 2016.
- International Atomic Energy Agency, *Statute*, (October 23, 1956), available from: <https://www.iaea.org/sites/default/files/statute.pdf>.
- National Network for Safe Communities at John Jay College. "Group Violence Intervention: Issue Brief." <https://nnscommunities.org/uploads/GVI-Issue-Brief.pdf>.
- Stockholm International Peace Research Institute, *SIPRI Yearbook 2017: Armaments, Disarmament and International Security*, (2017), available from: <http://www.sipriyearbook.org/>
- "Strategy for Educational Integration of Children from Ethnic Minorities." European Commission Education and Training. [https://ec.europa.eu/education/compendium/strategy-educational-integration-children-ethnic-minorities\\_en](https://ec.europa.eu/education/compendium/strategy-educational-integration-children-ethnic-minorities_en)
- Twigg, John. "Disaster Risk Reduction." Overseas Development Institute, Good Practice Review 9 (2015). <https://odihpn.org/resources/disaster-risk-reduction/>.
- United Nations, *Charter of the United Nations* (October 24, 1945), available from <http://www.un.org/en charter-united-nations/>.
- United Nations, Report of the High-Level Independent Panel on United Nations Peace Operations, (June 16, 2015), available from: [https://reliefweb.int/sites/reliefweb.int/files/resources/HIPPO\\_Report\\_1\\_June\\_2015.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/HIPPO_Report_1_June_2015.pdf).
- United Nations, *Treaty on the non-proliferation of nuclear weapons*, (July 1, 1968), available from: <https://www.un.org/disarmament/wmd/nuclear/npt/text>.
- United Nations General Assembly resolution 70/1, Transforming our world: the 2030 Agenda for Sustainable Development, (October 21, 2015), available from [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E).
- United Nations General Assembly resolution 70/262, *Review of the United Nations peacebuilding architecture* (April 27, 2016), available from <http://undocs.org/A/RES/70/262>.
- United Nations General Assembly, *Peacebuilding and sustaining peace: Report of the Secretary-General*, A/72/707 (January 18, 2018), available from <http://undocs.org/A/72/707>.
- United Nations Security Council resolution 2282, *Post-conflict peacebuilding* (April 27, 2016), available from [http://undocs.org/S/RES/2282\(2016\)](http://undocs.org/S/RES/2282(2016)).
- United Nations and World Bank. "Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict." Washington, DC: World Bank (2018). <https://openknowledge.worldbank.org/handle/10986/28337>.

# 2

# PREVENTION IN DISASTER RISK REDUCTION



SSRC

Conflict Prevention and Peace Forum

Colin Walch

## INTRODUCTION

This paper explores how prevention is conceptualized and put into practice in the field of disaster risk reduction (DRR). It examines prevention goals in the field of DRR and how those have been translated into policies and practices that have led to successful prevention at the local, national, and global level. This paper examines the following key questions:

- How is prevention conceptualized, analyzed, and operationalized in DRR?
- What are the prevention frameworks used at the local, national, and global level?
- How is prevention put into practice, and by whom, at the three different levels?
- What have been the successes and failures of DRR in recent years?
- What is seen as absolutely essential to allow for even minimal success of DRR?
- Are any of these practices relevant to conflict prevention and, if so, how can they be adapted?

The paper concludes by suggesting some DRR preventive measures that could be useful for conflict prevention.

## CONCEPTUALIZATION AND OPERATIONALIZATION OF PREVENTION IN DRR

### PREVENTION AND RELATED CONCEPTS

Over the last ten years, the focus on prevention and mitigation has increased in the field of disaster risk reduction (DRR). While prevention is the cornerstone of DRR today, this was not the case in the past, when much of the focus was put on response. This shift from disaster response to disaster prevention is related to a clearer understanding of the importance of human actions, rather than environmental phenomena, as the fundamental cause of disasters. In the 1970s, O’Keefe et al. determined that a natural disaster marks the interface between an extreme physical phenomenon and a vulnerable human population.<sup>1</sup> This recognition that human actions determine to a large extent the impact of natural disasters opened up new ways of thinking about disaster prevention, as it is more feasible to reduce vulnerability than natural hazards. While it took some time for DRR to fully embrace prevention, this shift began to take place as the DRR community of practice sought to become part of the sustainable development agenda. In addition, dramatic famines in the 1980s clearly highlighted how political and social factors were at the basis of disasters. This created a shift toward a prevention-based approach in order to avoid repeating such tragedies. Yet there is still tension between technical prevention, based on infrastructure and forecasting, and sociopolitical prevention, based on poverty reduction and empowerment of marginalized groups.<sup>2</sup> While the Sendai Framework tries to find common ground between these two approaches, the exclusion of the term “armed conflict” has been denounced by the sociopolitical prevention faction.<sup>3</sup>

The United Nations Office for Disaster Risk Reduction (UNISDR) defines prevention as the activities and measures taken to avoid existing and new disaster risks. More particularly, “prevention expresses the concept and intention to completely avoid potential adverse impacts of hazardous events. While certain disaster risks cannot be eliminated,

1 Phil O’Keefe, Ken Westgate, and Ben Wisner, “Taking the naturalness out of natural disasters,” *Nature* 260 (1976): 566-567.

2 Guiliano Di Baldassarre et al., “An Integrative Research Framework to Unravel the Interplay of Natural Hazards and Vulnerabilities,” *Earth’s Future* 6 (2018): 305-310.

3 Colin Walch, “Expertise and policy-making in disaster risk reduction,” *Nature Climate Change* 5 (2015): 706-707.

prevention aims at reducing vulnerability and exposure in such contexts where, as a result, the risk of disaster is removed.”<sup>4</sup>

The notion of risk is therefore crucial for prevention in DRR. Disaster risk is the consequence of the interaction between a hazard and the characteristics that make people and places vulnerable and exposed.<sup>5</sup> This notion of risk is usually described by the following equation:

$$\text{Risk} = \frac{\text{Hazard} \times \text{Exposure} \times \text{Vulnerability}}{\text{Coping Capacities}}$$

Source: UNISDR 2017

The term **hazard** is defined as “the probability of experiencing a certain intensity of hazard (e.g. earthquake, cyclone, etc.) at a specific location and is usually determined by a historical or user-defined scenario, probabilistic hazard assessment, or other method.”<sup>6</sup> It is important to note that the Sendai Framework for Disaster Risk Reduction (see page 7 for a full description of the framework) includes not only natural hazards (predominantly associated with natural processes and phenomena), but also human-induced hazards like industrial accidents. It is also important to remember that the term hazard does not include armed conflicts and other situations of violence (criminal, communal, interpersonal, etc.).

**Exposure** is defined as “the situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas.”<sup>7</sup> For example, measures of exposure can include the number of people or types of assets in an area.

**Vulnerability** is arguably the most important concept in prevention and has been the center of many researchers’ attention. In a nutshell, vulnerability refers to the “propensity to be harmed, in this case by a hazard, and to be unable to deal with that harm alongside the social processes creating and maintaining that propensity.”<sup>8</sup> Vulnerability involves a combination of factors that determine the degree to which someone’s life, livelihood, property, and other assets are put at risk by a discrete and identifiable event, or a series (or “cascade”) of such events in nature and in society. Some groups are more prone to damage, loss, and suffering in the context of differing hazards. Key variables explaining variations of impact include class (which includes differences in wealth), occupation, caste, ethnicity,

4 “Terminology on Disaster Risk Reduction,” UNISDR, <https://www.unisdr.org/we/inform/terminology#letter-r>.

5 “Disaster risk,” PreventionWeb, <https://www.preventionweb.net/risk/disaster-risk>.

6 Ibid.

7 “Terminology,” UNISDR.

8 I. Kelman, J.C. Gaillard, James Lewis, and Jessica Mercer, “Learning from the history of disaster vulnerability and resilience research and practice for climate change,” *Natural Hazards* 82, no. 1 (May 2016): 129-143.

gender, disability and health status, age, and immigration status (whether “documented” or “undocumented”), as well as the nature and extent of social networks.<sup>9</sup> Vulnerability involves varying magnitudes: some people experience higher levels than others.

When the concept was shaped, vulnerability was meant to characterize those who are at the “worst” end of the spectrum.<sup>10</sup> The notion of **coping capacity** of populations affected by natural disasters is a key concept in vulnerability assessments today. Coping capacity is the positive antidote to the negative connotation of “vulnerability,” and refers to the potential and capacities of each community instead of their weaknesses.<sup>11</sup> There is the recognition that we know a great deal about different risks and vulnerabilities in developing countries, such as climate, political, and economic risk, but our understanding of a household’s or community’s coping capacity is less clear. Coping strategies are difficult to monitor and interpret accurately because most early warning systems collect data on vulnerabilities. The concept of resilience is an attempt to better acknowledge the coping capacity of people, households, communities, and societies. The most common indicators attempting to measure coping capacity range from human and environmental resources, economic capacity, indigenous knowledge, macro-trends (GDP per capita), and tools and processes of disaster prevention efforts.

### MITIGATION AND PREVENTION

Since we cannot reduce the severity of hazards, the main opportunity for prevention of natural disasters lies in reducing exposure and vulnerability and increasing coping capacity. Prevention is often used interchangeably with mitigation, even though there are conceptual differences. Prevention is the outright avoidance of adverse impacts of hazards and related disasters, whereas mitigation is the lessening or minimizing of the adverse impacts of a hazardous event. While prevention is often the objective, some hazards are so severe that prevention becomes impossible. In a context where climate change is increasing the severity and strength of certain natural hazards, policy makers and researchers are increasingly talking about mitigation as a more feasible option. Yet, a prevention mindset remains essential in DRR.

### OPERATIONALIZATION OF PREVENTION

Prevention in DRR is operationalized through different sets of measures to avoid existing and new disaster risks. These measures are grouped into two primary categories: structural and nonstructural. Structural prevention or mitigation is defined as a risk reduction effort performed through the construction or altering of the physical environment through the application of engineered solutions. Nonstructural prevention and mitigation is defined as a measure that reduces risk through modification of human behavior and sociopolitical and economic factors. Inside these categories, there are five broad types of measures and activities to prevent and reduce risk:

- **Infrastructure:** the building of disaster-proof infrastructure is one of the first and most common disaster prevention practices. This includes retention systems, embankments to eliminate flood risk, and seismic retrofitting to ensure that critical infrastructure can endure an earthquake. It also includes the construction of community shelters so residents can be protected from a disaster’s consequences. This infrastructure needs to work together with an effective early warning system (EWS) that would enable residents to have enough time to travel to the shelter

9 Piers Blaikie, Terry Cannon, Ian Davis, and Ben Wisner, *At Risk: Natural Hazards, People’s Vulnerability and Disasters* (London: Routledge, 2005).

10 Ibid.

11 Francois Grünewald and Jeroen Warner, “Resilience: buzz word or critical strategic concept,” *Humanitarian Aid on the Move* no. 10, Groupe URD, Plaisians (2012).



before the hazard event. EWSs enable individuals and communities threatened by hazards to act effectively and in sufficient time to reduce the likelihood of death, injury, and damage to property and the environment. EWSs are understood as both infrastructure (forecasting and meteorological devices) and a social process of awareness raising and education to make sure the people understand and follow the warnings.

Ecosystem-based infrastructures are also important for prevention. These infrastructures use biodiversity and ecosystem services to help prevent and mitigate the adverse effects of natural hazards. Ecosystem-based approaches include the management, conservation, and restoration of ecosystems that help reduce exposure to natural hazards.<sup>12</sup> For instance, it has been demonstrated that mangroves mitigate the impact of tsunami and storm surges and the planting of trees on hillslopes reduces landslide risk. In general, well-managed ecosystems, such as wetlands, forests, and coastal systems, act as natural infrastructure; they both reduce physical exposure to many hazards and increase the socioeconomic resilience of people and communities by sustaining local livelihoods and providing essential natural resources such as food, water, and building materials.<sup>13</sup>

- **Legislation and institutions:** the creation of new legal frameworks and regulatory measures mitigates hazard risk by legally dictating human actions. New institutions might be created from these legal frameworks to implement the new regulatory measures. Examples of regulatory frameworks include:
  - Land use management: a legally imposed restriction on how land should be used. It may apply to specific geographic designations, such as coastal zone management, hillside or slope management, floodplain development restrictions, or microclimatic siting of structures.
  - Natural resource use and environmental management regulations: rules to limit the settlement or activities of people in areas that are known to be at high risk or to avoid new hazards that would be created by disturbing that land.
  - Disaster management regulations: a dedicated national disaster risk management law for setting key prevention principles and priorities, promoting a multihazard approach, recognizing rights of individuals, and clearly assigning responsibilities from the national to the local level. These could call for the creation of institutions in charge of disaster prevention efforts.
- **Vulnerability reduction:** reducing vulnerability is arguably the most important measure to prevent natural disasters. Vulnerability encompasses a wide range of political and socioeconomic factors, which explain why some groups are more prone to damage, loss, and suffering in the context of differing hazards. Key variables explaining variations of impact include class (which includes differences in wealth), occupation, caste, ethnicity, gender, disability and health status, age and immigration status (whether “documented” or “undocumented”), and the nature and extent of social networks. Vulnerability reduction measures therefore address the economic and political processes that make people “vulnerable.” In practice, vulnerability reduction in DRR includes measures to empower marginalized groups by improving farming practice (drought- or flood-resistant crops), raising awareness about disaster risk (through participative risk mapping and drawing of evacuation routes), creating community insurance (community emergency fund), and providing training in first aid. At the national level, legal frameworks and welfare programs need to pay special attention to vulnerable groups. Regarding vulnerability reduction, the Sendai Framework states:

“More dedicated action needs to be focused on tackling underlying disaster risk drivers, such as the consequences

<sup>12</sup> Davide Geneletti and Linda Zardo, “Ecosystem-based adaptation in cities: An analysis of European urban climate adaptation plans,” *Land Use Policy* 50 (2016): 38–47.

<sup>13</sup> “About PEDRR,” Partnership for Environment and Disaster Risk Reduction, <http://pedrr.org/about-us/>.

of poverty and inequality, climate change and variability, unplanned and rapid urbanization, poor land management and compounding factors such as demographic change, weak institutional arrangements, non-risk-informed policies, lack of regulation and incentives for private disaster risk reduction investment, complex supply chains, limited availability of technology, unsustainable uses of natural resources, declining ecosystems, pandemics and epidemics.”<sup>14</sup>

- **Coping capacity support:** on the other side of vulnerability, the notion of capacity is defined as the ability of a group or household to anticipate and resist a hazard’s harmful effects and to recover easily. This includes activities to support or strengthen existing prevention mechanisms, such as community early warning systems, indigenous knowledge of DRR (certain types of agricultural practices, building methods, etc.) and any other initiative that increases the cohesion of the community. At the national level, the Sendai Framework advocates measures that “strengthen the design and implementation of inclusive policies and social safety-net mechanisms, including through community involvement, integrated with livelihood enhancement programs, and access to basic health-care services.”<sup>15</sup>

Vulnerability reduction and coping capacity support are often linked together. The main method to identify groups who are vulnerable, the factors that make them vulnerable, how they are affected, and their needs and capacities is called vulnerability and capacity analysis/assessment (VCA). VCA views vulnerability in the broadest sense and therefore tries (where possible) to consider a wide range of environmental, economic, social, cultural, institutional, and political pressures. It also considers the capacities, resources, and assets people use to resist, cope with, and recover from disasters and other external shocks.<sup>16</sup>

- **Raising awareness and changing norms:** people have different perceptions of risk and often overlook the importance of prevention. Measures supporting professional associations and academic organizations in prevention planning practices are important to change norms. Education in schools on how to better prevent the impact of disaster should also be promoted to transform people’s behaviors.

These are five broad types of prevention activities in DRR. At the city level, the UNISDR has put forward ten essentials for prevention that provide more specifics.<sup>17</sup>

### LEVELS OF ANALYSIS

According to most frameworks and guidelines, the five broad types of prevention measures discussed above should be undertaken at every level of analysis, from national and regional to community and household. According to UNISDR, successful DRR results from the combination of top-down institutional changes and strategies with bottom-up, local, and community-based approaches.<sup>18</sup> There is a consensus that prevention should not be stand-alone but, rather, integrated within development planning and practice. The value of multistakeholder involvement is clearly highlighted in the Sendai Framework (see next section). While there is no ‘one-size-fits-all’ approach in prevention, there are a number of approaches and frameworks that link the various levels of analysis. For example,

<sup>14</sup> “Sendai Framework for Disaster Risk Reduction,” UNISDR, [www.unisdr.org/we/coordinate/sendai-framework](http://www.unisdr.org/we/coordinate/sendai-framework).

<sup>15</sup> Ibid.

<sup>16</sup> John Twigg, “Disaster Risk Reduction: Good Practice Review,” Humanitarian Practice Network and Overseas Development Institute, <https://odihpn.org/resources/disaster-risk-reduction/>.

<sup>17</sup> “How to Make Cities More Resilient: A Handbook for Local Government Leaders,” UNISDR (2017), [https://www.unisdr.org/files/26462\\_13.tenessentialchecklist.pdf](https://www.unisdr.org/files/26462_13.tenessentialchecklist.pdf).

<sup>18</sup> “Disaster risk reduction & disaster risk management,” PreventionWeb, <https://www.preventionweb.net/risk/drr-drm>.

some approaches suggest that the first stage in linking the different levels is to start with a workshop to engage government, nongovernmental organizations, and scientific community stakeholders at the national and provincial level to analyze subdistrict vulnerability and design appropriate prevention strategies. Stage two would engage local government, nongovernmental, and community stakeholders to refine the prevention strategies and design action plans for subdistricts. Stage three would involve implementing the project in collaboration with local government and community stakeholders. In sum, it is essential for prevention to maintain processes that facilitate top-down and bottom-up communication, as this strengthens the knowledge and awareness of the general public. Ensuring that all communities and citizens can easily communicate with the different institutions facilitates prevention by improving the flow of information.

The prevention community in DRR has actively engaged with the private sector. The private sector, ranging from small, individually owned businesses to national and global enterprises, is a central actor in prevention. Collaboration between the public and private sectors can help leverage resources, knowledge, skills, and energy to support prevention activities. The importance of engaging the private sector lies in the fact that this sector owns, invests in, builds, operates, and maintains most infrastructure and the built environment. The private sector is also the perfect advocate for prevention thinking because of its direct relationship with consumers and suppliers, and because most people are employed by private companies. Businesses are heavily commercially involved in DRR, providing engineers, consultants, software designers, insurers, transporters, and suppliers of goods and services of many kinds.<sup>19</sup> The private sector can play an important role in the provision of infrastructure and structural mitigation measures. In turn, businesses are more likely to invest in towns and cities that are active in minimizing disaster risk. More particularly, insurers and other firms publish and distribute information on disaster impact and risk reduction measures. Insurance and reinsurance companies have sponsored important hazards research, and in some public–private insurance schemes, premiums are reduced if households or communities demonstrate that they have taken certain steps to protect their property.<sup>20</sup> In addition, they can steer public demand towards risk-sensitive products and services.<sup>21</sup> At the same time, business activity in DRR (with the exception of insurance companies) is usually ad hoc and short-term and, significantly, addresses only the immediate symptoms of need or vulnerability, not the root causes for which businesses may in part be responsible. The UNISDR encourages private partnership and suggests creating incentives for businesses to invest in longer-term risk reduction, promote the benefits of prevention to consumers, and harness the potential of data and technology for prevention.<sup>22</sup>

## THE SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION

The Sendai Framework for Disaster Risk Reduction is the internationally agreed upon prevention framework that is used at the global, national, and local levels. It is a roadmap for regional and international organizations, states (at all levels), nongovernmental organizations, the private sector, and civil society. The Sendai Framework was adopted by UN member states on March 18, 2015, at the Third UN World Conference on Disaster Risk Reduction in Sendai City, Japan. It is the first major agreement of the 2030 development agenda and aims for “the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of

---

<sup>19</sup> Twigg, “Disaster Risk Reduction.”

<sup>20</sup> Ibid.

<sup>21</sup> “Post 2015 Framework – Private Sector Blueprint: Five Private Sector Vision for a Resilient Future,” UNISDR Disaster Risk Reduction Private Sector Partnership, [https://www.unisdr.org/files/42926\\_090315wcdrrpspublicationfinalnli.pdf](https://www.unisdr.org/files/42926_090315wcdrrpspublicationfinalnli.pdf).

<sup>22</sup> Author’s note from the Global Platform for Disaster Risk Reduction, Cancun, Mexico, May 2017. Some key points are available here: [https://www.unisdr.org/files/globalplatform/59237ead7cd48ARISE\\_Manifesto\\_for\\_Action.pdf](https://www.unisdr.org/files/globalplatform/59237ead7cd48ARISE_Manifesto_for_Action.pdf)

persons, businesses, communities and countries.”<sup>23</sup>

The Sendai Framework aims to guide the reduction of risk of all types of hazards (not all natural) at all levels (local, national, and global) as well as within and across all sectors (public, private, civil society, etc.) While the state plays a central role, especially as it is signatory to the Sendai Framework, DRR is everyone’s business. The Sendai Framework put forward four priority areas for focused action within and across sectors for the state at the local, national, regional, and global level. No single group or organization can address every aspect of DRR. Disasters are often “shared events,” crossing national boundaries and affecting whole regions. These four priorities include:

- Priority 1. Understanding disaster risk: disaster risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment. Such knowledge can be used for risk assessment, prevention, mitigation, preparedness and response.
- Priority 2. Strengthening disaster risk governance to manage disaster risk: disaster risk governance at the national, regional, and global levels is very important for prevention, mitigation, preparedness, response, recovery, and rehabilitation. It fosters collaboration and partnership.
- Priority 3. Investing in disaster risk reduction for resilience: public and private investment in disaster risk prevention and reduction through structural and nonstructural measures are essential to enhance the economic, social, health, and cultural resilience of persons, communities, countries, and their assets, as well as the environment.
- Priority 4. Enhancing disaster preparedness for effective response and to “build back better” in recovery, rehabilitation, and reconstruction: the growth of disaster risk means that there is a need to strengthen disaster preparedness for response, act in the anticipation of events, and ensure capacities are in place for effective response and recovery at all levels. The recovery, rehabilitation, and reconstruction phase is a critical opportunity to build back better, including through the integrating of disaster risk reduction into development measures.<sup>24</sup>

In addition to these targets, the Sendai Framework put forward seven priorities, which include:

1. Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 as compared to 2005-2015.
2. Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 as compared to 2005-2015.
3. Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.
4. Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience, by 2030.
5. Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
6. Substantially enhance international cooperation with developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.
7. Substantially increase the availability of and access to multihazard early warning systems and disaster risk information and assessments to people by 2030.<sup>25</sup>

While the main objective of the Sendai Framework is to prevent disasters, it is not only about prevention, as some of

<sup>23</sup> “Sendai Framework for Disaster Risk Reduction,” UNISDR, [www.unisdr.org/we/coordinate/sendai-framework](http://www.unisdr.org/we/coordinate/sendai-framework).

<sup>24</sup> “Sendai Framework,” UNISDR.

<sup>25</sup> Ibid.

the priorities are about preparedness, response, and recovery. Countries are expected to submit progress reports in all four priority areas. Monitoring at the national level will be supported by the online Sendai Framework Monitor, which was launched in March 2018. While the vast majority of countries in the world have ratified the Sendai Framework (and its predecessor, the Hyogo Framework), some countries have done better than others at preventing natural disasters. The next section explores cases of failure and success and suggests factors that might explain the different outcomes.

## SUCCESS AND FAILURE IN PREVENTION IN THE FIELD OF DRR

### INDIA

On October 12, 2013, Cyclone Phailin, a severe tropical storm with winds of 220 km/h, made landfall on the coast of Ganjam district and heavily affected more than 30,000 villages in the state of Odisha, one of the poorest regions of India. The damage was created by strong winds, a 3.5-meter storm surge, and torrential rainfall following the cyclone. Despite heavy damage to houses, agricultural lands, and infrastructure (telecommunication towers, roads, bridges, government buildings, etc.), which affected eleven million people, only twenty-three people were killed by the cyclone.<sup>26</sup> This figure would have been higher if it had not been for Odisha's strong disaster mitigation policies. The low level of fatalities in comparison to the strength of the cyclone is attributed to effective preventive measures from the government of Odisha and local communities. For comparison, a similar cyclone in 1999 killed more than 10,000 people in Odisha. As a prevention strategy ahead of Cyclone Phailin in 2013, the government collaborated with local communities and was able to evacuate almost a million people to safer areas before the cyclone struck. This evacuation saved many lives and was only possible through close collaboration between local officials, civil society networks, and citizens. These successful efforts in disaster risk reduction were praised by the World Bank, the United Nations, and many international nongovernmental organizations, and were highlighted as a global example during the Third World Conference on Disaster Risk Reduction that took place in Sendai in 2015.<sup>27</sup> The Odisha success story in disaster prevention has become an example for other regions of low socioeconomic status dealing with natural disasters, indicating that poor regions, if properly organized, can reduce disaster risk.

This success story of disaster prevention in one of the poorest states in India did not happen overnight. Following the 1999 cyclones that killed more than 10,000 people in Odisha, the state government decided to invest in disaster prevention and actively engage with development institutions such as the World Bank, the UNISDR, and NGOs to make Odisha more resilient. Not only did the traumatic experience of the 1999 cyclone lead people to be more easily persuaded to evacuate, but it also triggered a cycle of institutional learning that made prevention more efficient and embedded within the institutional culture. The political leadership was able to use this trauma as momentum to push for disaster prevention and avoid the mistakes of the past. At the Indian national level, the 1999 cyclone led to new legislation on DRR, which highlighted the importance of prevention and communication among all the actors involved. Similarly, the government of Odisha improved institutional collaboration at all levels of power by actively including local and traditional institutions, such as the Panchayati Raj. These precolonial institutions are the basic units of local administration, working at the village level, the block level, and the district level.<sup>28</sup> The traumatic experience of 1999 led communities and other stakeholders to team up with the state of Odisha to make prevention a priority at every level in society. The involvement of local communities in the planning process and in maintaining hazard awareness came

---

<sup>26</sup> "Disaster Planning Pays Off in Odisha, India," World Bank, October 7, 2014, <http://www.worldbank.org/en/results/2014/10/07/disaster-planning-pays-off-odisha-india>

<sup>27</sup> Ibid.

<sup>28</sup> Colin Walch, "Evacuation ahead of natural disasters: Evidence from cyclone Phailin in India and typhoon Haiyan in the Philippines," forthcoming in *Geography and Environment* (2018).

naturally. Odisha's commitment to reduce the level of vulnerability of the people translated into many socioeconomic policies, which led to economic growth and reduced inequalities.<sup>29</sup> These socioeconomic progresses and the clear commitment of the state of Odisha in turn increased the trust of the citizens toward the state.<sup>30</sup> In addition to creating trust between different organizations, it created communication channels and routines that could be efficiently used for disaster prevention and, ultimately, evacuation before Cyclone Phailin in 2013.<sup>31</sup>

## PHILIPPINES

In 2013, Typhoon Haiyan made landfall in Tacloban and other regions of Eastern Visayas in the Philippines, killing more than 6,000 people. Even though Typhoon Haiyan was one of the most powerful typhoons ever recorded in the Philippines, it was still surprising that so many people died in a country that has made prevention a priority for the last decade. The cornerstone of DRR in the Philippines is the Disaster Risk Reduction Management Act of 2010, which shifted the disaster management system's focus from response to prevention. Yet Tacloban and most of Eastern Visayas were unprepared when Typhoon Haiyan struck.<sup>32</sup>

The low level of prevention and mitigation strategies ahead of Typhoon Haiyan might be explained by various factors. First, many of the reforms from the 2010 Disaster Risk Reduction Management Act were not yet implemented at the local level. This was a result of the low commitment from political leadership to push for prevention and implement the policies. Second and more importantly, the region remained very socioeconomically vulnerable.<sup>33</sup> In the Philippines, almost two million people live on less than two dollars per day and very few people have access to land. The Philippines has one of the highest rates of income inequality in the world, and the gap between the rich and the poor is widening as compared to neighboring countries. This rising level of inequality is caused by a myriad of reasons, but land inequality remains an important one. Prevention and mitigation measures are difficult to implement when people do not own land. Indeed, landless people and informal settlers can only engage in short-term land management and accommodation practices, which compromise mitigation and prevention in the longer term. As a result, migrants and illegal settlers were the most affected by Typhoon Haiyan in 2013, and they have been slower to recover than have people who own land.<sup>34</sup> In addition, victims of armed conflict and people displaced by internal conflict are often landless and poor, and are therefore less able to cope with disasters. Importantly as well, Voors et al. find that individuals who were exposed to the consequences of civil war are more risk-seeking and therefore less likely to adopt prevention behaviors.<sup>35</sup>

Finally, there were also problems of trust and communication between the various levels of power. The local officials and communities did not understand some of the jargon (particularly the term "storm surge") ahead of Typhoon Haiyan, leading them to be unprepared. In addition, there was tension (mainly due to political reasons) between the local and the central government obstructing prevention efforts.<sup>36</sup>

29 "Odisha State Overview," World Bank, accessed March 20, 2018, [http://web.worldbank.org/archive/website01291/WEB/0\\_\\_\\_C-349.HTM](http://web.worldbank.org/archive/website01291/WEB/0___C-349.HTM)

30 Walch, "Evacuation ahead of natural disasters."

31 Ibid.

32 Colin Walch, "Typhoon Haiyan: pushing the limits of resilience? The effect of land inequality on resilience and disaster risk reduction policies in the Philippines," *Critical Asian Studies* 50, no. 1: 122-135.

33 Ibid.

34 Ibid.

35 Maarten J. Voors et al. "Violent Conflict and Behavior: A Field Experiment in Burundi," *American Economic Review* 102, no. 2 (2012): 941-964.

36 Walch, "Typhoon Haiyan."

In sum, the high level of vulnerability among coastal communities in the Philippines, together with issues of implementation and communication between the different levels of power, explain why Typhoon Haiyan killed so many people in a country where prevention is promoted.

From these two cases, there are several factors that are essential to allow for even minimal prevention. Looking at success stories of disaster prevention, two main factors stand out. First, it is important that there is a common awareness at all levels of decision making that prevention is working. State officials, communities, and citizens must believe that prevention and mitigation will reduce the impact of disasters. While it is true that it represents an investment at first, research has shown that it is cheaper than responding to the disaster.<sup>37</sup> Second, there is a need for political commitment to reduce vulnerability. Too often, prevention in DRR focuses on infrastructures, building codes, and regulations but neglects to address the socioeconomic and political factors driving the vulnerability of certain parts of the population. This is the case not only for developing countries, but for developed ones as well; Hurricane Katrina in the US, where the majority of victims were poor African-Americans, illustrated this.

## SHORTCOMINGS OF DRR IN PREVENTION

As indicated in the previous section, prevention in DRR has its own shortcomings. While the prevention framework is well established, including clear steps to prevent natural hazards from becoming disasters, the shortcomings lie in the implementation of the prevention measures. In countries that already have a long list of development priorities, prevention measures tend to be the last priority. Because prevention does not have direct political benefits for the leaders encouraging it, it often ends up at the bottom of the list of priorities. As a result, there is often a mismatch between the prevention framework set up by governments and prevention on the ground.

The prevention framework in DRR is often criticized for not paying sufficient attention to structural conditions of vulnerability, including socioeconomic factors and demographic characteristics such as race, ethnicity, gender, age, and other factors. The main idea is that the individual is made vulnerable first and foremost due to their social structure and not necessarily by other choices they make in life. According to the human rights-based approach in DRR, the current prevention framework does not sufficiently address structural vulnerabilities. Organizations like Oxfam and the Global Network of Civil Society Organization for Disaster Reduction (GNDR) have criticized the prevention framework proposed by UNISDR for omitting power relations, institutional failure, and intentionality.<sup>38</sup> Oxfam has demonstrated that much of the vulnerability lies in inequality, which explained why Typhoon Haiyan killed so many people in the Philippines, a country that has an advanced disaster prevention framework.<sup>39</sup> In sum, when prevention gets into more politically connoted fields, by providing programs to reduce inequality for example, successes are less obvious. Governments tend to be uncomfortable with structural reforms that threaten the status quo; this was highlighted during the Sendai negotiations, where state representation argued to keep DRR a technical business.

---

37 Thomas Tanner et al., "Why all development finance should be risk-informed," Overseas Development Institute (2015), <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9730.pdf>.

38 Ben Wisner, "UNISDR needs a better definition of 'Vulnerability,'" Global Network of Civil Society Organizations for Disaster Reduction (GNDR), <https://www.gndr.org/programmes/advocacy/365-disasters/more-than-365-disasters-blogs/item/1519-unisdr-needs-a-better-definition-of-vulnerability.html>.

39 Shaheen Chughtai, "Typhoon Haiyan: The response so far and vital lessons for the Philippines recovery," Oxfam briefing note, December 7, 2013, <https://www.oxfam.org/sites/www.oxfam.org/files/bn-typhoon-haiyan-philippines-response-071213-en.pdf>.

## CONCLUSIONS: DISASTER PREVENTION AS A TOOL FOR CONFLICT PREVENTION?

Vulnerability mapping methods and early warning systems in DRR might also serve as interesting avenues for conflict prevention. Vulnerability and capacity assessment (VCA) is a method to identify groups who are vulnerable, the factors that make them vulnerable, how they are affected, and their needs and capacities, thereby helping to ensure that projects, programs, and policies address these needs.<sup>40</sup> VCA views vulnerability in the broadest sense and therefore tries (where possible) to consider a wide range of environmental, economic, social, cultural, institutional, and political pressures. It also considers the capacities, resources, and assets people use to resist, cope with, and recover from disasters and other external shocks.<sup>41</sup> In practice, VCAs often use basic national-level indicators of socioeconomic development (e.g., size of land holdings, per capita income, literacy levels, mortality and morbidity rates, access to clean water, etc.) as background information. This information is later used for more targeted policies in particularly vulnerable regions. VCAs can be applied at many different levels, from national to community and household. VCAs are often carried out well before a potential disaster, allowing hazards and risks to be set within a broader socioeconomic picture. It is also a useful method for “building back better” following a disaster, promoting a prevention mindset. VCA is therefore both a diagnostic and empowering tool that could inform conflict prevention, as it provides a clear methodology for how to identify and address drivers of vulnerability factors before a disaster happens.

Early warning systems (EWSs) have long been used in DRR, and they often represent the most institutionalized form of prevention. There are many kinds of warning systems for droughts and food shortages. They often combine hazard/meteorological monitoring, assessments of food production levels after the harvest season, and other indicators of household stress, such as sales of livelihood assets. While regional and national systems are important in preventing large-scale disasters requiring international aid, local early warning systems play an important role in preventing smaller-scale disasters. They tend to draw on a wider range of indicators of food and livelihood insecurity than larger systems, they rely far more on qualitative data, and they involve higher levels of community participation.<sup>42</sup> Local EWSs are more efficient at taking account of local variations in hazard impact and are more sensitive to local coping strategies and vulnerability. They are therefore more able to recommend context-specific interventions to local decision makers, who have a better understanding of conditions on the ground and a greater sense of urgency in responding to problems.<sup>43</sup> Entities most often engaged in early warning are the national disaster risk reduction/management agencies/units, as well as the meteorological, hydrological, and health services. National EWSs and/or these services most often have representatives at the subnational level, especially in areas exposed to the greatest risk.

At an institutional level, synergy is required to achieve effective EWS between the different levels where action occurs. In the figure below, the main institutional mandates concerning EWS are described for each level (local, national, and regional/global). It is important to remember that the only interests to be served by an EWS are those of at-risk communities and individuals, whoever they may be.

<sup>40</sup> Twigg, “Disaster Risk Reduction.”

<sup>41</sup> Ibid.

<sup>42</sup> Ibid.

<sup>43</sup> Ibid.





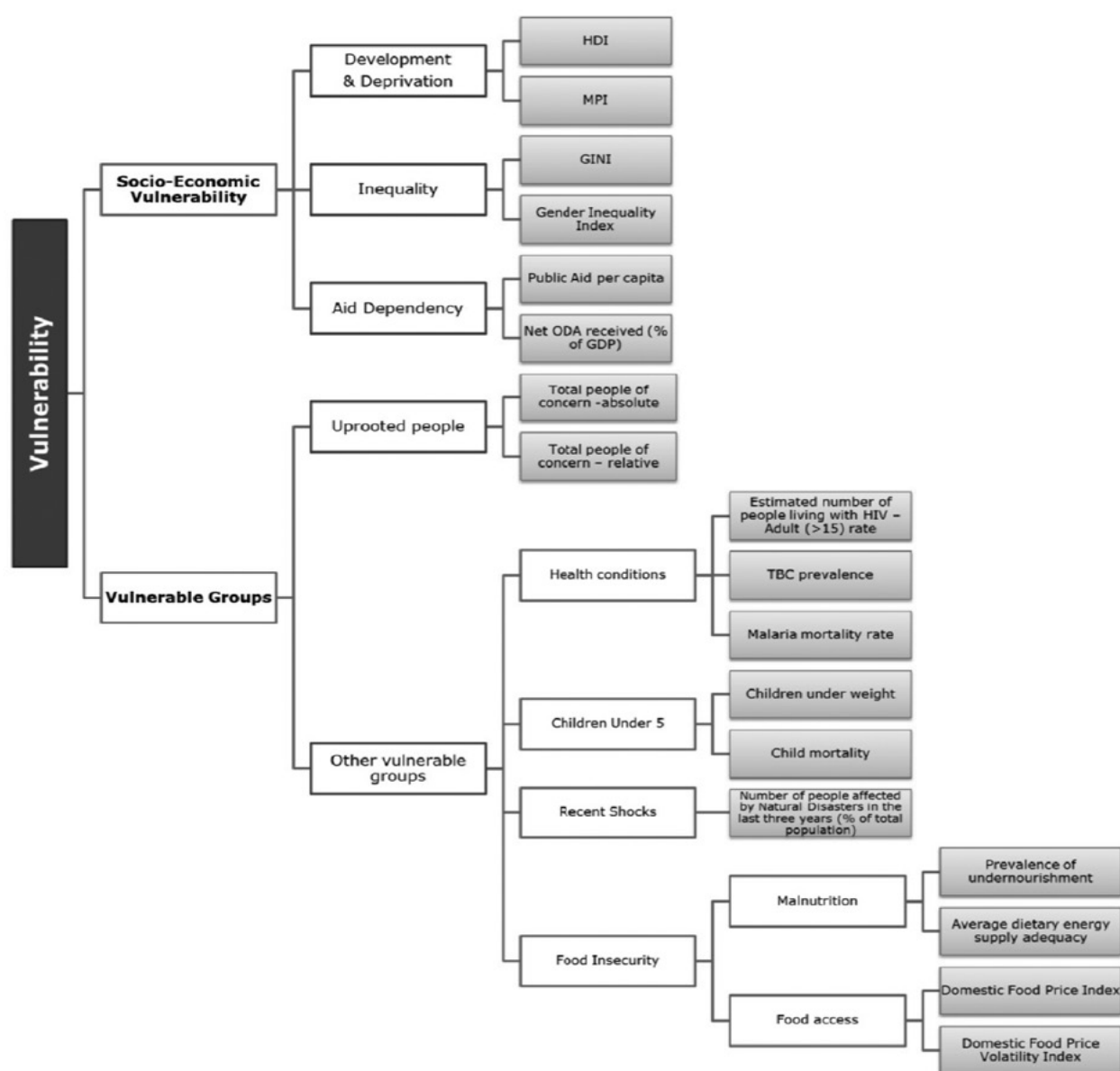
Source: IFRC 2012<sup>44</sup>

EWSs, however, have not always been successful in preventing disasters. The 2011 famine in Somalia is an example of an EWS failing to prevent such a disaster. While the information regarding the drought was released ahead of time, actions to prevent this upcoming disaster were too slow and cumbersome due to the insecurity and limited access on the ground caused by armed groups such as Al-Shabaab. The EWS was not able to provide a proper conflict analysis or data on vulnerable groups under Al-Shabaab control.<sup>45</sup> Since then, EWSs have tried to include more information on conflict and vulnerability, but the lack of data on these issues remains a significant obstacle.

EWSs for armed conflict do exist, but they are totally separate from those designed for natural hazards. They also tend to be regional and national rather than local. Local early warnings in DRR could be used to properly assess the risk of conflict and conflict resolution capacity at the community level. EWSs that pay attention to socioeconomic vulnerability could be useful for conflict prevention. The European Union suggests that data on vulnerability could be included in EWS in this way:

<sup>44</sup> "Community early warning systems: guiding principles," International Federation of Red Cross and Red Crescent Societies (2012), <http://www.ifrc.org/PageFiles/103323/1227800-IFRC-CEWS-Guiding-Principles-EN.pdf>.

<sup>45</sup> Chris Hillbrunner and Grainne Moloney, "When Early warning is not enough—Lessons learned from the 2011 Somalia Famine," *Global Food Security* 1, no. 1 (2012): 20-28.



Source: EU- INFORM<sup>46</sup>

While disaggregated data on local-level vulnerability is scarce, including this type of aggregate data for EWS in relation to conflict prevention could be useful, as socioeconomic indicators such as inequality and food access are important factors behind conflict.

Ideally, hazard and conflict warning could be joined together, as there are both scope and empirical reasons for combining environmental, hazard, and conflict indicators in local-level forecasting and warning systems. Indeed, there is now clear evidence that natural disasters and conflict often collide.<sup>47</sup>

46 M. Marin-Ferrer, L. Vernaccini, and K. Poljamsek, "INFORM Index for Risk Management: Concept and Methodology Version 2017," European Commission JRC Science for Policy Report (2017), <http://www.inform-index.org/Portals/0/InfoRM/2017/INFORM%20Concept%20and%20Methodology%20Version%202017%20Pdf%20FINAL.pdf?ver=2017-07-11-104935-783>.

47 Katie Peters, "The next frontier for disaster risk reduction: tackling disasters in fragile and conflict-affected contexts," ODI Reports (October 2017), <https://www.odi.org/publications/10952-next-frontier-disaster-risk-reduction-tackling-disasters-fragile-and-conflict-affected-contexts>.

## REFERENCES

- “About PEDRR.” Partnership for Environment and Disaster Risk Reduction. <http://pedrr.org/about-us/>.
- Blaikie, Piers, Terry Cannon, Ian Davis, and Ben Wisner. *At Risk: Natural Hazards, People's Vulnerability and Disasters*. London: Routledge, 2005.
- Chughtai, Shaheen. “Typhoon Haiyan: The response so far and vital lessons for the Philippines recovery.” Oxfam briefing note. December 7, 2013. <https://www.oxfam.org/sites/www.oxfam.org/files/bn-typhoon-haiyan-philippines-response-071213-en.pdf>.
- “Community early warning systems: guiding principles.” International Federation of Red Cross and Red Crescent Societies (2012). <http://www.ifrc.org/PageFiles/103323/1227800-IFRC-CEWS-Guiding-Principles-EN.pdf>.
- Di Baldassarre, Giuliano, Daniel Nohrstedt, Johanna Mård, Steffi Burchardt, Cecilia Albin, Sara Bondesson, Korbinian Breinl et al. “An Integrative Research Framework to Unravel the Interplay of Natural Hazards and Vulnerabilities.” *Earth's Future* 6 (2018): 305-310.
- “Disaster Planning Pays Off in Odisha, India.” World Bank. October 7, 2014. <http://www.worldbank.org/en/results/2014/10/07/disaster-planning-pays-off-odisha-india>.
- “Disaster risk.” PreventionWeb. <https://www.preventionweb.net/risk/disaster-risk>.
- “Disaster risk reduction & disaster risk management.” PreventionWeb. <https://www.preventionweb.net/risk/drr-drm>.
- Geneletti, Davide, and Linda Zardo. “Ecosystem-based adaptation in cities: An analysis of European urban climate adaptation plans.” *Land Use Policy* 50 (2016): 38-47.
- Grünewald, Francois, and Jeroen Warner. “Resilience: buzz word or critical strategic concept?” *Humanitarian Aid on the Move* no. 10, Groupe URD, Plaisians (2012).
- Hillbrunner, Chris, and Grainne Moloney. “When Early warning is not enough—Lessons learned from the 2011 Somalia Famine.” *Global Food Security* 1, no. 1 (2012): 20-28.
- “How to Make Cities More Resilient: A Handbook for Local Government Leaders.” UNISDR (2017). [https://www.unisdr.org/files/26462\\_13.tenessentialschecklist.pdf](https://www.unisdr.org/files/26462_13.tenessentialschecklist.pdf).
- Kelman, I., J.C. Gaillard, James Lewis, and Jessica Mercer. “Learning from the history of disaster vulnerability and resilience research and practice for climate change.” *Natural Hazards* 82, no. 1 (May 2016): 129-143.
- Marin-Ferrer, M., L. Vernaccini, and K. Poljamsek, “INFORM Index for Risk Management: Concept and Methodology Version 2017,” European Commission JRC Science for Policy Report (2017), <http://www.inform-index.org/Portals/o/InfoRM/2017/INFORM%20Concept%20and%20Methodology%20Version%202017%20Pdf%20FINAL.pdf?ver=2017-07-11-104935-783>.
- “Odisha State Overview.” World Bank. Accessed March 20, 2018. [http://web.worldbank.org/archive/website01291/WEB/o\\_\\_C-349.HTM](http://web.worldbank.org/archive/website01291/WEB/o__C-349.HTM).
- O’Keefe, Phil, Ken Westgate, and Ben Wisner. “Taking the naturalness out of natural disasters.” *Nature* 260 (1976): 566-567.
- Peters, Katie. “The next frontier for disaster risk reduction: tackling disasters in fragile and conflict-affected contexts.” ODI Reports (October 2017). <https://www.odi.org/publications/10952-next-frontier-disaster-risk-reduction-tackling-disasters-fragile-and-conflict-affected-contexts>

- “Post 2015 Framework – Private Sector Blueprint: Five Private Sector Vision for a Resilient Future.” UNISDR Disaster Risk Reduction Private Sector Partnership. [https://www.unisdr.org/files/42926\\_090315wcdrrpspublicationfinalonli.pdf](https://www.unisdr.org/files/42926_090315wcdrrpspublicationfinalonli.pdf).
- “Sendai Framework for Disaster Risk Reduction.” UNISDR. [www.unisdr.org/we/coordinate/sendai-framework](http://www.unisdr.org/we/coordinate/sendai-framework).
- Tanner, Thomas, Emma Lovell, Emily Wilkinson, Francis Ghesquiere, Robert Reid, and Sumati Rajput. “Why all development finance should be risk-informed.” Overseas Development Institute (2015). <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9730.pdf>
- “Terminology on Disaster Risk Reduction.” UNISDR. <https://www.unisdr.org/we/inform/terminology#letter-r>.
- Twigg, John. “Disaster Risk Reduction: Good Practice Review.” Humanitarian Practice Network and Overseas Development Institute (2015). <https://odihpn.org/resources/disaster-risk-reduction/>.
- Voors, Maarten J., Eleonora E.M. Nillesen, Philip Verwimp, Erwin H. Bulte, Robert Lensink, and Daan P. Van Soest. “Violent Conflict and Behavior: A Field Experiment in Burundi.” *American Economic Review* 102, no. 2 (2012): 941-964.
- Walch, Colin. (2018) “Typhoon Haiyan: pushing the limits of resilience? The effect of land inequality on resilience and disaster risk reduction policies in the Philippines.” *Critical Asian Studies* 50, no. 1 (2017): 122-135.
- Walch, Colin. “Expertise and policy-making in disaster risk reduction.” *Nature Climate Change* 5 (2015): 706-707.
- Walch, Colin. “Evacuation ahead of natural disasters: Evidence from cyclone Phailin in India and typhoon Haiyan in the Philippines.” Forthcoming in *Geography and Environment* (2018).
- Wisner, Ben. “UNISDR needs a better definition of ‘Vulnerability.’” Global Network of Civil Society Organizations for Disaster Reduction (GNDR). <https://www.gndr.org/programmes/advocacy/365-disasters/more-than-365-disasters-blogs/item/1519-unisdr-needs-a-better-definition-of-vulnerability.html>.

# 3

# PREVENTION IN NUCLEAR NONPROLIFERATION



SSRC

Conflict Prevention and Peace Forum

**Karim Kamel**

### CONCEPTUALIZATION, ANALYSIS, AND OPERATIONALIZATION

The nuclear nonproliferation regime was built around the goal of preventing the spread of nuclear weapons. The preamble of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) highlights the agreement's goal as the "prevention of the wider dissemination of nuclear weapons."<sup>1</sup> Article III of the NPT on safeguards explains the objective of "preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices."<sup>2</sup> In a sense, the term "prevention," and ways to operationalize it, has been part and parcel of the thinking surrounding the nuclear nonproliferation regime. The use of the term proliferation to explain the wider spread of nuclear weapons is borrowed from the biological sphere.<sup>3</sup> This in itself is indicative of earlier thinking around the nuclear challenge, which regarded the wider dissemination of these weapons as similar to the spread of a disease that needs to be contained and combatted.

After the use of nuclear weapons in Hiroshima and Nagasaki, the international community fully realized the devastating effects of these instruments. Since the inception of the United Nations, the objective of preventing a nuclear war has been a priority, and the very first United Nations General Assembly Resolution was, in fact, on the "Establishment of a Commission to Deal with the Problems Raised by the Discovery of Atomic Energy."<sup>4</sup> As the name suggests, there was a perceived "problem" raised by the advent of nuclear energy. This problem, which still persists today, lies in the fact that the routes to exploit the peaceful uses of nuclear technology are the same as those for military applications. Consequently, preventing the spread of nuclear weapons requires an awareness that peaceful nuclear applications and possible military ones are intertwined.

This intertwining between peaceful and military applications was the first hurdle facing the creation of a robust nuclear nonproliferation regime. The second was that by the time the international community came to an agreement to stop the weapons' spread, a number of countries had already demonstrated their acquisition of nuclear bomb technology. Therefore, countries had to think of a creative structure that: first, combats the spread of nuclear weapons; second, facilitates the transfer of peaceful nuclear applications; and third, works toward the eventual elimination of these weapons. These three aspects have become the pillars of the nonproliferation regime. It is critical to understand how this regime, at its core, is built on these three pillars, and that the delicate and fair balance between them is what makes the nonproliferation regime sustainable and able to prevent the spread of nuclear weapons.

The operationalization of this vision came in the form of control over the materials and technology that could be used to manufacture a nuclear weapon. In 1953, US President Eisenhower gave his famous "Atoms for Peace" speech, wherein he laid out the vision to create an international body that promotes peaceful uses of the atom while disincentivizing the development of indigenous programs that could have a military angle.<sup>5</sup> In 1957, the

1 "Treaty on the Non-Proliferation of Nuclear Weapons (NPT)," United Nations Office for Disarmament Affairs (UNODA), <https://www.un.org/disarmament/wmd/nuclear/npt/text>.

2 Ibid.

3 Benoît Pelopidas, "The Oracles of Proliferation: How Experts Maintain a Biased Historical Reading that Limits Policy Innovation," *The Nonproliferation Review* 18, no. 1 (2011): 297-314. <http://www.tandfonline.com/doi/full/10.1080/10736700.2011.549185?scroll=top&needAccess=true>.

4 "Resolutions Adopted on the Reports of the First Committee," <https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NR0/032/52/IMG/NR003252.pdf?OpenElement>

5 Dwight D. Eisenhower, "Atoms for Peace" (speech, 470th Plenary Meeting of the United Nations General Assembly, December 8, 1953), International Atomic Energy Agency, <https://www.iaea.org/about/history/atoms-for-peace-speech>.

International Atomic Energy Agency (IAEA) was established. Its objectives are to “accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. It shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose.”<sup>6</sup>

## PREVENTION FRAMEWORKS AT THE NATIONAL AND GLOBAL LEVELS

Prevention in the nuclear nonproliferation regime operates on the global and national levels. At the global level, the nonproliferation regime is composed of a series of treaties and instruments that guard against the spread of nuclear weapons. On the national level, countries adopt laws and regulations as well as build agencies and capacities to comply with their international obligations.<sup>7</sup>

### THE GLOBAL LEVEL

It is the responsibility of the state to abide by its international obligations under the instruments it has ratified. In the case of the NPT, the cornerstone of the nonproliferation regime, non-nuclear weapon states commit to:

- Not seek or develop nuclear weapons.

Nuclear weapon states, on the other hand, have three obligations:

- Not transfer nuclear weapons to a non-weapon state;
- Work toward general and complete disarmament; and
- Facilitate the transfer of peaceful nuclear technology to non-nuclear weapon states.

This arrangement achieves three objectives:

- Draws a line in the sand between states that have nuclear weapons and those who do not, which is the containment aspect of the regime;
- Creates a vision toward the eventual total elimination of the weapons by those who have them, thereby creating an incentive for non-nuclear weapon states to commit to their nonproliferation obligations; and
- Disincentivizes non-nuclear weapon states from developing indigenous technologies through facilitating the transfer of peaceful nuclear technologies, thereby reducing the risk of weaponization.

Thus, with the entry of NPT into force, non-nuclear weapon states carry the obligation to demonstrate the exclusively peaceful nature of their nuclear programs. The IAEA safeguards are the verification mechanisms responsible for that carrying out this task. A non-nuclear weapon state is “required to conclude a safeguards agreement with the IAEA, known as a Comprehensive Safeguards Agreement (CSA or INFCIRC/153 corrected).”<sup>8</sup> The goal of safeguards is to

---

6 “The Statute of the IAEA,” International Atomic Energy Agency, <https://www.iaea.org/about/statute#a1-2>.

7 US National Academies and Russian Academy of Sciences, “Overcoming Impediments to U.S.-Russian Cooperation on Nuclear Nonproliferation: Report of a Joint Workshop,” (Washington, DC: National Academies Press, 2004). <https://www.nap.edu/read/10928/chapter/4>.

8 “IAEA Safeguards Agreements at a Glance,” Arms Control Association, August 28, 2017, <https://www.armscontrol.org/factsheets/IAEAProtocol>.

“deter the diversion of nuclear material from peaceful use by maximizing the risk of early detection.”<sup>9</sup> Under the CSA, a state declares “the type and quantity of material subject to safeguards.”<sup>10</sup> The IAEA then applies its safeguards mechanisms to ensure the accuracy of these declarations and continues to monitor a country’s activities to ensure their adherence.

Scope of Safeguards:

- Material accountability: a system for tracking all transfers and flow of materials in nuclear facilities, including sampling and analysis of nuclear materials, inspections, and reviewing and verifying operating records.
- Physical security: restrictive access to nuclear materials at a given site.
- Containment and surveillance: using seals, cameras, and different instruments to detect any movement or tampering with nuclear materials.<sup>11</sup>

These mechanisms prevent nuclear proliferation the same way that auditing procedures build confidence in proper financial conduct and prevent embezzlement in businesses. The theory is that this continued verification and auditing deters diversion of nuclear materials by increasing the risk of early detection.

Complete Transparency vs. Pragmatism:

At the time of negotiating safeguards provisions, some states proposed that an entire nuclear program of a non-weapon state be made available for verification. This, however, was not a proposition welcomed by all states. Germany, in particular, had an issue with mentioning “facilities” in safeguards, and a compromise was reached so that Article III mentions “activities” instead. Then negotiators came to an agreement on monitoring “strategic points” within the nuclear fuel cycle to verify the peaceful nature of a program.<sup>12</sup> A strategic point is defined as:

a location selected during examination of design information where, under normal conditions and when combined with the information from all ‘strategic points’ taken together, the information necessary and sufficient for the implementation of safeguards measures is obtained and verified; a “strategic point” may include any location where key measurements related to material balance accountancy are made and where containment and surveillance measures are executed [153, para. 116].<sup>13</sup>

If safeguards were implemented on all detection points, some would have been made redundant. Thus, the system was created to have minimum credibility while not overburdening the inspection process.<sup>14</sup>

While the technical aspect of safeguards provides the international legitimacy needed for broad buy-in, the political weight that countries give to such matters is key to ensuring their deterrent effect. Thus, “the most important factor underpinning the safeguards regime is international political pressure and how particular nations perceive their long-

9 “Safeguards to Prevent Nuclear Proliferation,” World Nuclear Association, March 2017, <http://www.world-nuclear.org/information-library/safety-and-security/non-proliferation/safeguards-to-prevent-nuclear-proliferation.aspx>.

10 “IAEA Safeguards,” Arms Control Association.

11 “Safeguards,” World Nuclear Association.

12 Roland Timerbaev, interview by Rich Hooper and Jenni Rissanen, June 14, 2007, Vienna, Austria, transcript, [https://cgs.pnnl.gov/fois/doclib/Timerbaev\(transcript\)2.pdf](https://cgs.pnnl.gov/fois/doclib/Timerbaev(transcript)2.pdf).

13 Thomas Graham, Jr. and Damien J. LaVera “Cornerstones of Security: Arms Control Treaties in the Nuclear Era,” University of Washington Press, 2003

14 Anni Fritzell, “Research 2011:02 The Back-End of the Nuclear Fuel Cycle in Sweden: Considerations for safeguards and data handling,” Swedish Radiation Safety Authority, report no. 2011:02 (January 2011), [http://www.iaea.org/inis/collection/NCLCollectionStore/\\_Public/42/040/42040096.pdf](http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/42/040/42040096.pdf)



term security interests in relation to their immediate neighbors.”<sup>15</sup> Politicization of resolutions remains a challenge for the nonproliferation regime, especially given that it is the Board of Governors of the IAEA that votes on resolutions related to the scientific findings of the Secretariat.

Structurally, the IAEA is composed of a Secretariat and a Board of Governors. The Secretariat is the technical arm of the agency; its role is primarily a scientific one. The IAEA produces technical reports on countries’ nuclear programs, and it is up to the Board of Governors to act upon the Secretariat’s findings. The Board of Governors is composed of thirty-five states, elected members of the IAEA who have the ability to follow up on the agency’s findings.<sup>16</sup> In particular, and according to the IAEA Statute,

the Board shall report the non-compliance to all members and to the Security Council and General Assembly of the United Nations. In the event of failure of the recipient State or States to take fully corrective action within a reasonable time, the Board may take one or both of the following measures: direct curtailment or suspension of assistance being provided by the Agency or by a member, and call for the return of materials and equipment made available to the recipient member or group of members.<sup>17</sup>

This direct channel between the IAEA and the Security Council is what gives it teeth. The Security Council is the only international body able to act under Chapter VII of the UN Charter on matters related to international security. The Security Council is able to request that a state grant the IAEA broader access to its facilities, like in the case of Iran in 2004.<sup>18</sup> The Security Council is also able to impose sanctions, like in the cases of Iran and North Korea.<sup>19</sup>

## THE NATIONAL LEVEL

On the national level, non-nuclear weapon states need to adopt legislation and create entities that ensure the peaceful nature of their nuclear programs. The IAEA published the “Handbook on Nuclear Law” in 2003, which stressed that secure and peaceful uses of nuclear energy can only be ensured with the adoption and implementation of “an effective national legal framework to govern this technology.”<sup>20</sup> For instance, the handbook outlines the basic structure of a nuclear law, explains the provisions and their objectives, and offers models for countries to use. The IAEA also provides legal assistance for countries working on their national legislation to implement their nonproliferation obligations.

The handbook also explains how to establish the regulatory body and what tasks it needs to bear. This is one of the national imperatives for a country, that is, to establish a national regulatory body independent of its nuclear operators. This guarantees that there will be no conflict of interest when maintaining effective and continuous monitoring and accountancy of a country’s nuclear activities.

There are other national “good practices” that countries can adopt to maintain and demonstrate the peaceful nature of their nuclear programs, such as:

---

<sup>15</sup> “Safeguards,” World Nuclear Association.

<sup>16</sup> “Rules and Procedures of the Board of Governors,” International Atomic Energy Agency, <https://www.iaea.org/about/policy/board/rules-and-procedures-of-the-board-of-governors>.

<sup>17</sup> “The Statute,” International Atomic Energy Agency.

<sup>18</sup> Pierre Goldschmidt, “Safeguards Noncompliance: A Challenge for the IAEA and the UN Security Council,” Arms Control Association, January 14, 2010, [https://www.armscontrol.org/act/2010\\_01-02/Goldschmidt](https://www.armscontrol.org/act/2010_01-02/Goldschmidt).

<sup>19</sup> Ibid.

<sup>20</sup> Carlton Stoiber, Abdelmadjid Cherf, Wolfram Tonhauser, and Maria de Lourdes Vez Carmona, “Handbook on Nuclear Law: Implementing Legislation” (Vienna, Austria: International Atomic Energy Agency, 2010). [https://www-pub.iaea.org/MTCD/publications/PDF/Pub1456\\_web.pdf](https://www-pub.iaea.org/MTCD/publications/PDF/Pub1456_web.pdf).

- Adopting national legislation that focuses on eliminating the usage of highly enriched uranium;
- Adopting national legislation and practices to disincentivize the reprocessing of plutonium; and
- Promoting nonproliferation and disarmament education in school curricula.<sup>21</sup>

### PREVENTION IN PRACTICE

The theory to ensure the successful prevention of the spread of nuclear weapons is based on building multiple lines of defense. These defenses work because of a “fight-back” mechanism, whereby in the event that one line of defense is defeated, another is still able to prevent proliferation. Here is one possible way to break down and explain these layers of defense:

- **Norm building and sustaining:** at the top of the structure there is norm building. There are global norms against the further proliferation and testing of nuclear weapons. These two norms are guarded by two treaties, the NPT and the Comprehensive Nuclear-Test-Ban Treaty (CTBT). This first line of defense creates an international moral obligation for states not to break these agreed-upon rules.
- **Verification:** to ensure that all parties to the regime are abiding by their commitments, the IAEA and the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) maintain their verification instruments, conducting periodic checks that these commitments are being met.
- **Consultation and clarification mechanisms:** both verification agencies have “consultation and clarification” mechanisms in case noncompliance concerns arise.
- **On-site inspection (OSI):** while inspections take place on a periodic basis with IAEA safeguards, in the case of CTBTO, OSI only kicks in after the International Monitoring System (IMS) reports data on a possible nuclear explosion and the consultation and clarification process fails to resolve the matter.
- **Reporting to the Security Council:** once the Board of Governors of the IAEA or the CTBTO reach the conclusion that a state is noncompliant, it is able to report it to the Security Council, which is then able to impose sanctions and take even more coercive measures.

### THE “LINES OF DEFENSE” THEORY IN PRACTICE

Considering Iran, while the ideal scenario would have been for Iran never to seek technologies that could eventually lead to the production of nuclear weapons in the first place, this was not the case. Iran was not deterred by strong international norms or the likelihood of being caught violating the safeguards obligations. When the IAEA found that Iran was not in compliance with its safeguards obligations, it requested clarification on Iran’s program and intent, as well as asking Iran to provide access to and allow more inspections of its nuclear facilities. From there, the IAEA engaged in a ten-year process of further investigating the Iranian nuclear program, which was one of the foundations for building the case for the Joint Comprehensive Plan of Action (JCPOA). Also, the reports of the IAEA to the Security Council and the subsequent imposition of sanctions were among the leverage points that made the JCPOA negotiations possible.

<sup>21</sup> Rob van Riet and Alyn Ware, “Handbook for Parliamentarians No. 19: Supporting Nuclear Non-Proliferation and Disarmament,” (France: Inter-Parliamentary Union, 2012). <http://www.pnnd.org/sites/default/files/ipu-pnnd-handbook-english.pdf>.

## COMPLEMENTARITIES

Given that this is a technology-driven challenge, technologically advanced countries have a major role to play in sustaining the nonproliferation regime. The main mechanism by which countries play this role is through export control. “Export controls are laws that regulate the export and sharing of sensitive technologies, equipment, software, and related data and services to foreign states and citizens, including to foreign nationals or representatives of a foreign entity on domestic territory, for reasons of national security and/or protection of trade.”<sup>22</sup>

There are multilateral export control groups that meet and engage with the purpose of standardizing policies and building a unified strategy to prevent the possible misuse of certain technologies and materials. The two main nuclear-related export control groups are the Nuclear Suppliers Group (NSG) and the Zangger Committee.

- NSG is a group of nuclear-technology-supplier countries that aim to strengthen the nonproliferation regime by making sure that the transfer of nuclear technology is based on guidelines consistent with the principles and objectives of international treaties. They have created guidelines on how to transfer nuclear-related technologies and materials in a manner that ensures their nondiversion. They have established a “Trigger List” and a “Dual Use List” of technologies and equipment that could be misused.<sup>23</sup>
- The Zangger Committee is a group of thirty-five nations whose aim is to harmonize the implementation of the NPT requirements and to apply the IAEA safeguards to nuclear exports.<sup>24</sup>

Another complementarity on the non-nuclear weapon states front is regional arrangements. These can come in the form of an agreement on the handling of nuclear technologies and safeguards like the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC). “The principal mission of ABACC is to guarantee Argentina, Brazil, and the international community that all the existing nuclear materials and facilities in the two countries are being used for exclusively peaceful purposes.”<sup>25</sup> It can also be in the form of creating a nuclear-weapons-free zone (NWFZ). There are currently five NWFZs with “a specified region in which countries commit themselves not to manufacture, acquire, test, or possess nuclear weapons.”<sup>26</sup>

## SUCCESSSES AND FAILURES

On the conceptual level, there are two main successes of the nonproliferation regime; the first is norm building. The NPT is one of the most subscribed-to treaties in international relations. There are only a handful of states who are not yet parties, namely India, Pakistan, and Israel, and there is only one case of violation that led to the development of weapons, which is North Korea. For almost half a century, since the inception of the NPT, the norm has grown stronger with the passage of time without majorly disturbing violation cases. While there is some frustration about the lack of progress on the disarmament front, the regime still succeeds in preserving the norm that the further proliferation of nuclear weapons is an undesirable phenomenon that needs to be prevented.

---

22 Bryan R. Early, “Explaining Nonproliferation Export Controls” (presentation, Department of Political Science, University at Albany, SUNY, July 14, 2009). <https://www.belfercenter.org/sites/default/files/legacy/files/Nonproliferation-Export-Controls.pdf>

23 “Nuclear Suppliers Group,” The National Archives, archived on October 2, 2009, <http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/energy/non-proliferation/nuclear/suppliers-group/page40729.html>.

24 “Multilateral Export Control and Non-Proliferation Regimes,” Defense Technology Security Administration, <http://www.dtsa.mil/SitePages/promoting-engagement/multilateral-non-proliferation-regimes.aspx>.

25 “About,” Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC), <https://www.abacc.org.br/en/the-abacc/about>.

26 “Nuclear-Weapon-Free Zones (NWFZ) at a Glance,” Arms Control Association, July 17, 2017, <https://www.armscontrol.org/factsheets/nwfz>.

Second, a conceptual success of the nonproliferation regime is what former IAEA Deputy Director General David Waller called the “‘spirit of Vienna’ - that majority’s acceptance of activities related to verification is carefully balanced by the support of the minority, the developed countries, for technology transfer.”<sup>27</sup> This spirit guides the activities of the IAEA, the guardian of the NPT, and creates a sense of balance in its activities. It also helps the agency project an image beyond that of a watchdog and more one of an agency that works for the sustainable development of the entire globe. Unfortunately, in recent years this spirit has eroded, with less emphasis given to the IAEA’s role in promoting peaceful uses and more emphasis on the nonproliferation aspect. This challenge, however, is being recognized by many seeking to rebalance the IAEA’s work. It is widely recognized that this balance has been preventing countries from acquiring nuclear weapons.

On a more operational front, there are cases where the prevention of proliferation has worked even after the normative line of defense was defeated. Theoretically, as explained above, the IAEA safeguards should serve as a deterrent—that is, states should be deterred from pursuing a nuclear weapon because they know they would be caught and face international sanctions. However, history has shown cases where states were not deterred, but an international body resolved the matter to reach a peaceful resolution. The JCPOA, also known as the Iran deal, is one vivid example.

Iran was found to be in violation of safeguards obligations in 2003 by the IAEA.<sup>28</sup> The case was then taken up by the Security Council, which imposed the first set of sanctions on Iran in 2006.<sup>29</sup> For almost a decade, when the Iranian nuclear program was under international scrutiny, the IAEA’s role was instrumental in resolving uncertainties. Also, having a multilateral international agency was key in reaching the deal on the back end. As the final parameters of the JCPOA were being drawn up, many tasks were assigned to the IAEA. The IAEA’s implementation of those verification activities ensured impartiality to all parties and provided Iran with a face-saving mechanism, since it would be an international body carrying out those activities as opposed to one particular country or even a group of select countries.

## DOWNFALLS

There are failures, of course, with regard to prevention in the nonproliferation regime. The most vivid case is that of North Korea, or the Democratic People’s Republic of Korea (DPRK). Despite it being party to the NPT, North Korea has created a nuclear weapons program and has tested a number of nuclear weapons in the past decade. Literature on why the case of DPRK has been so disastrous is substantial. However, the elements of failure can be summarized as the lack of action or desire for action by the international community, even when faced with overwhelming scientific evidence.

Iraq was a different type of failure. Similar to Iran, the nonproliferation regime’s first line of defense was defeated in the Iraqi case. Years of follow-up took place, but a peaceful resolution could not be reached. The United Nations Special Commission (UNSCOM) was established to verify Iraq’s cessation of activities that violated its NPT obligations.<sup>30</sup> And while the international bodies and instruments in place concluded that Iraq did not possess a weapons program any longer, the US government at the time still conducted a military operation against Iraq. This sort of dismissiveness toward international bodies’ roles is corrosive to an international system that needs to be built on legitimacy and buy-in,

27 David Waller, “Atoms for Peace: A perspective from the IAEA,” International Atomic Energy Agency, December 8, 2003, <https://www.iaea.org/newscenter/statements/atoms-peace-perspective-iaea>.

28 “Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran,” International Atomic Energy Agency Board of Governors, September 12, 2003, <https://www.iaea.org/sites/default/files/gov2003-69.pdf>.

29 “UN Security Council Resolutions on Iran,” Arms Control Association, August 6, 2017, <https://www.armscontrol.org/factsheets/Security-Council-Resolutions-on-Iran#res1737>.

30 “UNSCOM Basic Facts,” United Nations Special Commission (UNSCOM), <http://www.un.org/Depts/unscom/General/basicfacts.html>.

rather than unilateral coercive measures. In a way, this could also be seen as a success case. While major global powers were in favor of having the IAEA conclude that Iraq maintained a nuclear weapons program in 2002-2003, the agency held its ground and noted that Iraq was no longer believed to possess a nuclear weapons program. These events were the driver behind the IAEA winning the Nobel Peace Prize in 2005.<sup>31</sup>

## ESSENTIAL ELEMENTS FOR MINIMAL SUCCESS

There are essential elements that ensure minimal success within the nuclear nonproliferation regime. These are: maintaining norms, implementing the CSA, and continuously improving the system.

### MAINTAINING NORMS

As outlined above, the nonproliferation regime rests on a number of mutually reinforcing norms. The continuous subscription to these norms by the international community, and efforts to strengthen them, are needed to ensure minimal success. The two major norms are:

- The balance between the three pillars of the NPT: nonproliferation, disarmament and promoting peaceful uses; and
- The ban on nuclear testing.

### IMPLEMENTING THE CSA

While the IAEA's Additional Protocol is considered the international standard for safeguards, the CSA remains the main instrument and the most subscribed-to agreement to ensure that a country's nuclear activities remain peaceful in purpose. "Under a comprehensive safeguards agreement, the IAEA has the right and obligation to ensure that safeguards are applied on all nuclear material in the territory, jurisdiction or control of the State for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices."<sup>32</sup>

### CONTINUOUS IMPROVEMENT

One important element for maintaining the effectiveness of IAEA safeguards is the continuous improvement of its instruments and mechanisms. The discovery of undeclared Iraqi nuclear activities in the 1990s made the international community realize that it needs to verify not only the accuracy of declarations but also the completeness of those declarations. The IAEA therefore concluded the Additional Protocol, which gave it greater access to states' facilities.<sup>33</sup> The Additional Protocol is now considered the international standard for safeguards, with more than 132 enforcing states.<sup>34</sup>

---

<sup>31</sup> "Nobel Peace Prize Awarded to IAEA and Director General," International Atomic Energy Agency, October 7, 2005, <https://www.iaea.org/newscenter/news/nobel-peace-prize-awarded-iaea-and-director-general>.

<sup>32</sup> "Safeguards agreements," International Atomic Energy Agency, <https://www.iaea.org/topics/safeguards-agreements>.

<sup>33</sup> Trevor Findlay, "Looking Back: The Additional Protocol," Arms Control Association, November 1, 2007, [https://www.armscontrol.org/act/2007\\_11/Lookingback](https://www.armscontrol.org/act/2007_11/Lookingback).

<sup>34</sup> "Status of the Additional Protocol," International Atomic Energy Agency, updated December 4, 2017, <https://www.iaea.org/topics/additional-protocol/status>.

Another important lesson learned was the “state-level concept” for safeguards. A country’s nuclear activities are looked at per state as a whole. Since the decision to maintain a peaceful nuclear program versus a weapons program is a state decision, it makes sense for the IAEA to look at the state’s activities in a more holistic manner.<sup>35</sup>

Other than the IAEA safeguards, there are instruments to verify different commitments related to the nonproliferation regime. One of the most innovative is the verification regime of the CTBT. The CTBT is a treaty that bans nuclear explosive testing. Parties to the treaty commit to not testing a nuclear weapon above ground, underground, or under water. To verify this commitment, there are 337 monitoring stations that are able to detect any nuclear explosion on the planet. Once stations detect an explosion, the data is transferred to the International Data Centre (IDC) in Vienna, which processes the data and issues an analysis of the event.<sup>36</sup> This data is presented in a transparent fashion and is available to all member states of the CTBT. The fact that the system relies on deployed stations around the globe, which have minimal human interactions with heavy reliance on technology, reduces the politicization of the monitoring, as it relies mostly on scientific data.<sup>37</sup> The CTBT’s verification regime is among the most innovative that exist today. The CTBT’s Group of Scientific Experts (GSE) went through the details of the verification regime for years, and when countries came to an agreement on the nuclear ban, the system was ready to be built.<sup>38</sup>

## CONCLUSION

*The nonproliferation regime demonstrates how a multilevel prevention structure can help inhibit the spread of nuclear weapons. The science-based nature of safeguards and their technical tools provide assurances with regard to the objectivity of the regime. Mechanically, there needs to be greater clarity between states’ responsibilities internationally and their duties domestically. Connections also need to be drawn between the two, but an effective prevention system needs to be realistic about what it asks of states. These are political agreements at the end of the day, and the creation of fair and balanced arrangements is essential for system sustainability. Countries’ use of political weight provides the real support for the norms and applications that thwart the dissemination of nuclear weapons.*

35 Laura Rockwood, “The IAEA’s State-Level Concept and the Law of Unintended Consequences,” Arms Control Association, August 28, 2014, [https://www.armscontrol.org/act/2014\\_09/Features/The-IAEAs-State-Level-Concept-and-the-Law-of-Unintended-Consequences](https://www.armscontrol.org/act/2014_09/Features/The-IAEAs-State-Level-Concept-and-the-Law-of-Unintended-Consequences).

36 “Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) Verification Regime,” Inventory of International Nonproliferation Organizations and Regimes, updated May 1, 2017, [http://www.nti.org/media/pdfs/ctbto\\_verif-regime\\_xPmoJSd.pdf?\\_=/1493656396](http://www.nti.org/media/pdfs/ctbto_verif-regime_xPmoJSd.pdf?_=/1493656396).

37 Ibid.

38 Ralph Alewine, “Overview of the Group of Scientific Experts (GSE) for the CTBT,” PowerPoint presentation for Carnegie Endowment for International Peace, <http://carnegieendowment.org/files/20090409-alewine.pdf>

## REFERENCES

- "About," Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC), <https://www.abacc.org.br/en/the-abacc/about>.
- "Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) Verification Regime," Inventory of International Nonproliferation Organizations and Regimes, updated May 1, 2017, [http://www.nti.org/media/pdfs/ctbto\\_verification\\_xPmoJSd.pdf?\\_=1493656396](http://www.nti.org/media/pdfs/ctbto_verification_xPmoJSd.pdf?_=1493656396).
- "IAEA Safeguards Agreements at a Glance," Arms Control Association, August 28, 2017, <https://www.armscontrol.org/factsheets/IAEAProtoco>.
- "IAEA Safeguards," Arms Control Association.
- "Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran," International Atomic Energy Agency Board of Governors, September 12, 2003, <https://www.iaea.org/sites/default/files/gov2003-69.pdf>.
- "Multilateral Export Control and Non-Proliferation Regimes," Defense Technology Security Administration, <http://www.dtsa.mil/SitePages/promoting-engagement/multilateral-non-proliferation-regimes.aspx>.
- "Nobel Peace Prize Awarded to IAEA and Director General," International Atomic Energy Agency, October 7, 2005, <https://www.iaea.org/newscenter/news/nobel-peace-prize-awarded-iaea-and-director-general>.
- "Nuclear Suppliers Group," The National Archives, archived on October 2, 2009, <http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/energy/non-proliferation/nuclear/suppliers-group/page40729.html>.
- "Nuclear-Weapon-Free Zones (NWFZ) at a Glance," Arms Control Association, July 17, 2017, <https://www.armscontrol.org/factsheets/nwzfz>.
- "Rules and Procedures of the Board of Governors," International Atomic Energy Agency, <https://www.iaea.org/about/policy/board/rules-and-procedures-of-the-board-of-governors>.
- "Safeguards agreements," International Atomic Energy Agency, <https://www.iaea.org/topics/safeguards-agreements>.
- "Safeguards to Prevent Nuclear Proliferation," World Nuclear Association, March 2017, <http://www.world-nuclear.org/information-library/safety-and-security/non-proliferation/safeguards-to-prevent-nuclear-proliferation.aspx>.
- "Safeguards," World Nuclear Association.
- "Status of the Additional Protocol," International Atomic Energy Agency, updated December 4, 2017, <https://www.iaea.org/topics/additional-protocol/status>.
- "The Statute of the IAEA," International Atomic Energy Agency, <https://www.iaea.org/about/statute#a1-2>.
- "Treaty on the Non-Proliferation of Nuclear Weapons (NPT)," United Nations Office for Disarmament Affairs (UNODA), <https://www.un.org/disarmament/wmd/nuclear/npt/text>.
- "UN Security Council Resolutions on Iran," Arms Control Association, August 6, 2017, <https://www.armscontrol.org/factsheets/Security-Council-Resolutions-on-Iran#res1737>.
- "UNSCOM Basic Facts," United Nations Special Commission (UNSCOM), <http://www.un.org/Depts/unscom/General/basicfacts.html>.
- "Resolutions Adopted on the Reports of the First Committee," <https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NRO/o32/52/IMG/NRO03252.pdf?OpenElement>

- Alewine, Ralph. "Overview of the Group of Scientific Experts (GSE) for the CTBT," PowerPoint presentation for Carnegie Endowment for International Peace, <http://carnegieendowment.org/files/20090409-alewine.pdf>
- Early, Bryan R. "Explaining Nonproliferation Export Controls" (presentation, Department of Political Science, University at Albany, SUNY, July 14, 2009). <https://www.belfercenter.org/sites/default/files/legacy/files/Nonproliferation-Export-Controls.pdf>
- Eisenhower, Dwight D. "Atoms for Peace" (speech, 470th Plenary Meeting of the United Nations General Assembly, December 8, 1953), International Atomic Energy Agency, <https://www.iaea.org/about/history/atoms-for-peace-speech>.
- Findlay, Trevor. "Looking Back: The Additional Protocol," Arms Control Association, November 1, 2007, [https://www.armscontrol.org/act/2007\\_11/Lookingback](https://www.armscontrol.org/act/2007_11/Lookingback).
- Fritzell, Anni. "Research 2011:02 The Back-End of the Nuclear Fuel Cycle in Sweden: Considerations for safeguards and data handling," Swedish Radiation Safety Authority, report no. 2011:02 (January 2011), [http://www.iaea.org/inis/collection/NCLCollectionStore/\\_Public/42/040/42040096.pdf](http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/42/040/42040096.pdf)
- Goldschmidt, Pierre. "Safeguards Noncompliance: A Challenge for the IAEA and the UN Security Council," Arms Control Association, January 14, 2010, [https://www.armscontrol.org/act/2010\\_01-02/Goldschmidt](https://www.armscontrol.org/act/2010_01-02/Goldschmidt).
- Graham, Thomas and Damien J. LaVera "Cornerstones of Security: Arms Control Treaties in the Nuclear Era," University of Washington Press, 2003
- Pelopidas, Benoît. "The Oracles of Proliferation: How Experts Maintain a Biased Historical Reading that Limits Policy Innovation, The Nonproliferation Review 18, no. 1 (2011): 297-314. <http://www.tandfonline.com/doi/full/10.1080/10736700.2011.549185?scroll=top&needAccess=true>.
- Rockwood, Laura. "The IAEA's State-Level Concept and the Law of Unintended Consequences," Arms Control Association, August 28, 2014, [https://www.armscontrol.org/act/2014\\_09/Features/The-IAEAs-State-Level-Concept-and-the-Law-of-Unintended-Consequences](https://www.armscontrol.org/act/2014_09/Features/The-IAEAs-State-Level-Concept-and-the-Law-of-Unintended-Consequences).
- Stoiber, Carlton, Cherf, Abdelmadjid, Tonhauser, Wolfram, and Maria de Lourdes Vez Carmona, "Handbook on Nuclear Law: Implementing Legislation" (Vienna, Austria: International Atomic Energy Agency, 2010). [https://www-pub.iaea.org/MTCD/publications/PDF/Pub1456\\_web.pdf](https://www-pub.iaea.org/MTCD/publications/PDF/Pub1456_web.pdf).
- Timerbaev, Roland. interview by Rich Hooper and Jenni Rissanen, June 14, 2007, Vienna, Austria, transcript, [https://cgs.pnnl.gov/fois/doclib/Timerbaev\(transcript\)2.pdf](https://cgs.pnnl.gov/fois/doclib/Timerbaev(transcript)2.pdf).
- US National Academies and Russian Academy of Sciences, "Overcoming Impediments to U.S.-Russian Cooperation on Nuclear Nonproliferation: Report of a Joint Workshop," (Washington, DC: National Academies Press, 2004). <https://www.nap.edu/read/10928/chapter/4>.
- van Riet, Rob and Alyn Ware, "Handbook for Parliamentarians No. 19: Supporting Nuclear Non-Proliferation and Disarmament," (France: Inter-Parliamentary Union, 2012). <http://www.pnnd.org/sites/default/files/ipu-pnnd-handbook-english.pdf>.
- Waller, David "Atoms for Peace: A perspective from the IAEA," International Atomic Energy Agency, December 8, 2003, <https://www.iaea.org/newscenter/statements/atoms-peace-perspective-iaea>.



# 4 PREVENTION IN PUBLIC HEALTH



SSRC

Conflict Prevention and Peace Forum

**Alana Kolundzija**

Public health is a field that embodies a systems perspective spanning the entire spectrum of prevention, detection, and control. Nonetheless, prevention is the central tenet of the public health approach because, as the saying goes, “an ounce of prevention is worth a pound of cure.” The majority of public health efforts to intervene before symptoms appear are in order to prevent disease, but some interventions also aim to improve the likelihood of early diagnosis and access to treatment to minimize the effects of disease when it does manifest.

Public health is a relatively new field that originally grew out of the sanitation movement. It was not until the turn of the twentieth century that it burgeoned into an autonomous field with an explicit path of training and specialization. Early on, in the infancy of the field, prevention was based on the premise that education was the key to improving health and preventing disease. Much of the work revolved around the idea that if people were provided with more information to increase their awareness about diseases, they would make healthier choices and experience fewer health problems. However, as the field of public health has matured over the last two decades, practitioners have come to realize that simply providing more information is often not enough to lead people to change their behavior. There is an array of social determinants and structural factors that also exert a powerful impact on an individual's health that must be addressed in order to maximize the effectiveness of prevention efforts.

Some of the strongest social determinants are related to socioeconomic characteristics such as class, educational attainment, race/ethnicity, religion, and gender. Large disparities in health outcomes indicate that diseases often disproportionately affect specific populations. Marginalized communities are likely to suffer from abuse, discrimination, and exclusion, and while reasons for marginalization vary dramatically according to context, they are often related to ethnicity or religion. It is thus especially important to make a concerted effort to reach out to these communities and tailor interventions to meet their specific needs.

Structural factors such as public policy and legislation, as well as the physical structure of the environment in which a person lives, can also enhance or limit an individual's ability to make healthy choices. For instance, the safety and walkability of a neighborhood, water and air quality, and proximity to healthy and affordable food options all have a significant impact on the health of a community. All of the root causes of health are underlying factors that influence whether a person will be able to change his or her behavior independent of whether or not they have enough information to make an informed choice.<sup>1</sup>

Education and increasing public awareness are still very important aspects of prevention in public health, but the field has come to the realization that we also need to create circumstances that make it easier for people to make healthy choices. Any successful prevention work must also focus on creating an enabling environment that makes it easier to make healthy choices.

This paper will provide a brief overview of the most common prevention framework utilized in the field of public health and then present several case studies to illustrate some of the biggest achievements attributed to the field of public health. The paper will examine vaccines, tobacco control, and motor vehicle safety; it will then present the slightly more complex case of HIV/AIDS to examine how public health systems are set up to tackle global epidemics. Each case study will highlight a particular lesson that can potentially be applied to the prevention of violence and conflicts.

---

<sup>1</sup> Paula Braveman and Laura Gottlieb, “The social determinants of health: it’s time to consider the causes of the causes,” *Public Health Reports* 129, no. 1\_suppl2 (2014): 19-31.

## BACKGROUND

The most common public health prevention model identifies four levels of intervention: primordial, primary, secondary, and tertiary (refer to Figure 1). As the pyramid indicates, the bulk of prevention efforts are dedicated to early intervention that aims to prevent the onset of disease; less effort is dedicated to mitigating the effects of disease.

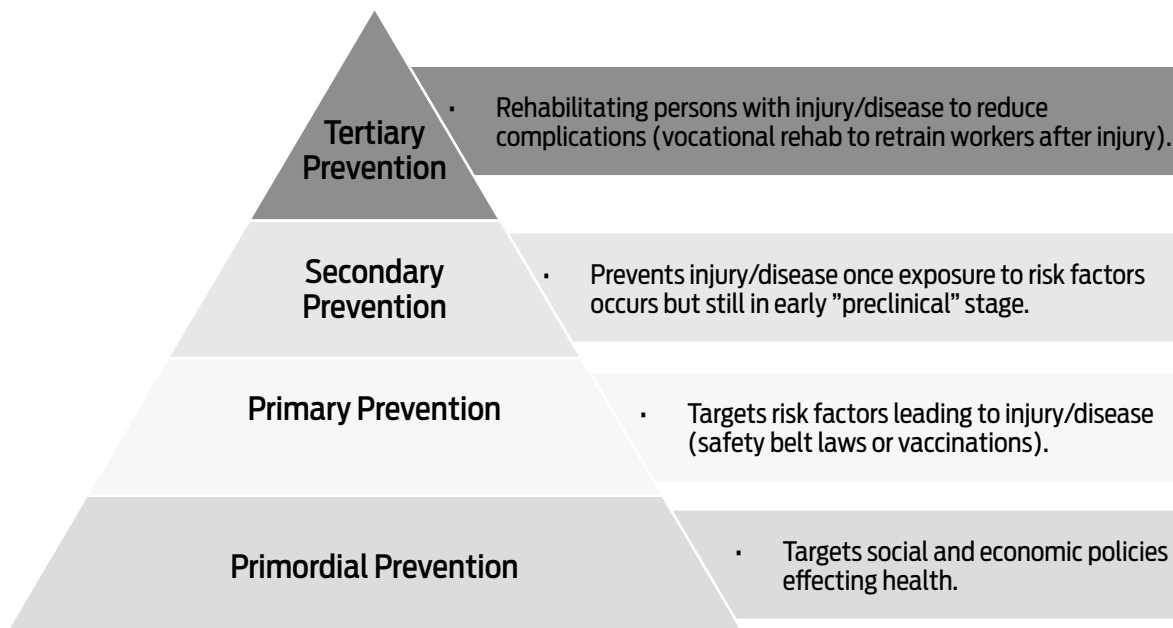


Figure 1. Public Health Pyramid (Bhui 2012)

Primordial prevention constitutes the base level of the pyramid, a level that was appended to the original model as the field reached a consensus about the importance of addressing the social, economic, and cultural factors that contribute to health disparities. This level of intervention aims to reduce the amount of risk that people are exposed to in their daily lives. Considering the example of cancer, a primordial-level intervention might focus on advocating for legislative policies to create stronger regulations limiting the use of carcinogenic chemicals. Then, a specific community-level intervention would follow up in a low-income neighborhood that is disproportionately affected by carcinogens because of its proximity to a factory that dumps toxic waste.

At the next level, primary prevention aims to improve the overall health of the population in order to prevent the onset of illness and thereby reduce disease incidence. An intervention at this level might involve disseminating information about how to avoid carcinogens and the importance of physical activity and a healthy diet.

Secondary prevention seeks to establish guidelines and increase access to screening tests, so that diseases can be quickly detected before symptoms appear. When diseases are diagnosed early, treatment can begin promptly to decrease the negative impact and progression of the disease. In relation to cancer, secondary prevention would involve guidelines for the ages at which particular cancer screenings should begin and how often they should be done. For instance, screening guidelines for breast cancer suggest that women should get a mammogram once a year when they are between the ages of forty-five and fifty-four.

Tertiary prevention makes up the tip of the pyramid and relates to improving treatment and recovery. This level of prevention aims to lessen the burden of disease by making treatment not only more effective but also more accessible and affordable. Chemotherapy can be an effective treatment for cancer, but if the supply of drugs is intermittent or the medication is too expensive, then the treatment is not actually effective for the general public.

Thus, even when an effective treatment exists, tertiary prevention works to make the drugs available and affordable to everyone—especially people who live in marginalized communities with limited access to treatment due to their physical location, supply chain, or affordability.

Together these four levels of intervention constitute a multilayered approach to prevention. Depending on the problem at hand, prevention can take on a wide range of forms to strategically intervene.

There are several indicators typically used in the field of public health to calculate the effects of health interventions and assess outcomes. Two of the most common are quality-adjusted life years (QALYs) and disability-adjusted life years (DALYs). These two indicators measure an inverse relationship since QALYs assess gains attributed to health interventions, while DALYs measure the loss of functioning associated with disability.<sup>2</sup> QALYs are used primarily to estimate someone's life expectancy based on the levels of health-related quality of life they are predicted to experience throughout the course of their life. DALYs originated in economics and are especially useful for calculating cost-effective analysis and disease burden. Both of these measurements allow for different complexity in the consideration of disability and age and their influence on the outcomes of health interventions.

## CASE STUDIES

There are several large-scale achievements that are widely recognized as success stories in the field of public health. By taking a closer look at several of them, this paper aims to highlight some of the key lessons learned from these successes that could potentially be applied to the field of conflict and violence prevention.

### VACCINES

Vaccines are undoubtedly one of the biggest achievements to come out of the field of public health. Vaccines prevent an estimated six million deaths worldwide each year and greatly reduce the burden of infectious diseases.<sup>3</sup> Individuals exposed to a small amount of a pathogen are able to build their resistance and develop immunity that prevents them from contracting the disease if they are exposed to it at a later time. Through routine vaccination, we have been able to eradicate smallpox, eliminate poliomyelitis in the Americas, and control the spread of measles, rubella, tetanus, and diphtheria.

The World Health Organization (WHO) has recommendations for twenty-two vaccines, established and detailed guidelines for required and recommended vaccinations, and schedules that indicate when and how often people should receive vaccines across their lifespans.<sup>4</sup> Each country individually decides if they will adopt the guidelines or adapt them as necessary to fit their context. Civil society organizations often play an important role in highlighting which issues should be addressed on the national agenda and pushing their countries to incorporate global guidelines into their national policies. Recent economic analysis indicates that routine vaccination of each US birth cohort prevents approximately 42,000 deaths and 20 million cases of disease with a net savings of nearly \$14 billion in direct costs and \$69 billion in societal costs.<sup>5</sup>

2 Franco Sassi, "Calculating QALYs, comparing QALY and DALY calculations," *Health Policy and Planning* 21, no. 5 (2006): 402-408.

3 Jenifer Ehreth, "The global value of vaccination," *Vaccine* 21, no. 7-8 (2003): 596-600.

4 "Table 1: summary of WHO position Papers-Recommendations for routine immunization," World Health Organization (2017).

5 F. Zhou, "Updated economic evaluation of the routine childhood immunization schedule in the United States" (presented at the 45th National Immunization Conference, Washington, DC, March 28-31, 2011).

An important takeaway from vaccination is something referred to as the herd effect, or population immunity. This refers to a protective phenomenon that occurs when a large enough proportion of the population is vaccinated. The herd effect is due to the fact that not all of a population needs to be vaccinated in order to effectively control and prevent the spread of disease; when enough people are vaccinated, the germs are not able to travel as easily from person to person. Once the herd effect is achieved, vulnerable members of the community who cannot be immunized for a variety of reasons (too young, too old, immune compromised, some forms of cancer, allergies, etc.) are indirectly protected.

The proportion of the population that needs to be immunized depends on each disease based on its unique profile of transmission, infectiousness, transmissibility and severity. A disease like measles, which is highly contagious, requires a high proportion of the population to be vaccinated to achieve herd immunity, while a disease like tetanus, which does not travel from person to person, requires a much lower proportion to control its spread. The term “social vaccine” has been used to refer to interventions that address the social conditions of disease as a means of prevention.<sup>6</sup> Social programs often set forty to fifty percent as the minimum goal to reach when thinking about shifting social norms to effectively alter the dynamics of the communities.

## TOBACCO CONTROL

Tobacco control is another area in which public health efforts have played a major role. Around the time that the first US Surgeon General Report on tobacco was released in 1964, public health practitioners began to recognize smoking as a health hazard. In 1965, the adult smoking prevalence in the US was 42.4 percent—declining to 15.1 percent by 2015.

Much of this decline can be attributed to public health antismoking campaigns that targeted social norms to prevent initiation of tobacco use, promote cessation of use, and reduce exposure to environmental tobacco smoke. In this case, the antismoking campaigns were a major factor in changing public perception and paved the way for a crucial shift in tobacco-related public policy. This included comprehensive smoke-free laws at the state level that prohibit smoking in worksites, restaurants, and bars, in combination with increases in state and federal taxes levied on tobacco products. Increased regulation of tobacco and tobacco-related advertising is another factor that became especially important after tobacco came under the regulation of the US Food and Drug Administration (FDA) in 2010. The FDA banned flavored cigarettes, required larger and more graphic warning labels, and strengthened restrictions on youth access.

As in all complex public health issues, many factors contribute to the success of prevention. The takeaway from tobacco control is that the public health community actively campaigned to change social norms regarding tobacco and those social norms did change over time. Smoking used to be considered cool, glamorous, and sophisticated, but antismoking campaigns helped people recognize smoking as a health hazard. This change did not happen quickly, instead spanning the duration of several decades, and it did not happen all over the world. Some countries, like Spain and China, still have high rates of adult smoking. In the US, the combination of strong regulation and increased taxes combined with a prolific antismoking campaign changed public perception regarding smoking and demonstrated that social norm change is possible over time.

The antismoking campaign was an essential catalyst for raising awareness about the hazards of smoking that began around the same time as the first Surgeon General Report on tobacco came out in the mid-1960s. Then, as people’s perceptions about smoking shifted, among both government officials and the general public, the antismoking campaign created the circumstances that enabled stronger regulation. Tobacco regulation grew incrementally, starting with a mandatory Surgeon General warning on all cigarette packs in 1965. The Public Health Cigarette Smoking Act in

---

6 Fran Baum, Ravi Narayan, David Sanders, Vikram Patel, and Arturo Quizhpe, “Social vaccines to resist and change unhealthy social and economic structures: a useful metaphor for health promotion,” *Health Promotion International* 24, no. 4 (2009): 428-433.

1970 banned all radio and television cigarette ads in the US, and smoking was banned on all domestic flights in 1990. Eventually, comprehensive smoke-free laws at the city and state levels began to be implemented in the early 2000s. Initially, these regulations faced resistance, but the incremental nature of increasingly strong regulation facilitated the shift. Similarly, taxes on tobacco products have gradually increased over the last couple of decades parallel to the increased regulation. The public health antismoking campaign is an ongoing effort, especially because it is important to target each new cohort of young people at the key phase when they are most likely to experiment with tobacco in order to prevent them from starting to smoke.

## MOTOR VEHICLE SAFETY

Vehicle traffic accidents are the leading cause of death around the world for individuals between the ages of fifteen and twenty-nine.<sup>7</sup> Nonetheless, motor vehicle safety has progressed significantly over the last several decades. Part of that improvement can be attributed to engineering advancements that have made vehicles and roadways safer to use, but the field of public health has also contributed to successful efforts to change individuals' personal behavior to prevent accidents and make road use safer overall.

A number of protective policies have been implemented addressing aspects such as: seat belt use, child safety, motorcycle helmets, and driving while under the influence of alcohol. One of the keys to making the roads safer has been the enforcement of these laws, because it would be inefficient to have laws on the books that are not enforced on a regular basis, compelling people to comply with the laws. Sanctions against drivers who violate the laws need to be combined with an emphasis on the role law enforcement agents play in order to create a system of accountability for drivers. This does require an adequate budget for law enforcement agencies as well as training to encourage them to enforce motor vehicle safety laws.

Taking a closer look at how legislation against driving under the influence developed provides an example of how stronger enforcement efforts have materialized. Mothers Against Drunk Driving (MADD) is a nonprofit organization that has pushed for tougher legislation and punishments for those convicted of driving under the influence (DUI). The organization was founded in 1980 after a thirteen-year-old girl was killed in California by a drunk driver who had been arrested for another hit-and-run drunk-driving accident. MADD exerted major political pressure to secure stronger sanctions against DUI offenders, including: license suspension/revocation, proof of financial responsibility to reinstate insurance, car impounding, alcohol education programs, DUI plates, ignition interlock devices, and mandatory jail sentences when appropriate. In 1998, the federal government provided incentives to encourage states to adopt a .08 blood alcohol concentration limit two years before Congress adopted it as the national legal limit. Soon after, states began adopting zero-tolerance laws for drivers under the age of twenty-one, which invoked a mandatory punishment for any alcohol in their system regardless of whether they were actually intoxicated. The important lesson to take away from this example is that penalties play an essential role in reinforcing the laws and deterring people from engaging in risky behavior.

## HIV/AIDS

Public health has had some success in the fight against AIDS, mostly in the area of vertical transmission from mother to child, but unfortunately the global AIDS epidemic continues to be an issue of pressing concern. AIDS differs from other diseases like cancer because it is a communicable disease that is greatly influenced by negative social responses,

<sup>7</sup> "Road Traffic Injuries Fact Sheet," World Health Organization (2017).

such as stigma and discrimination.<sup>8</sup> Due to punitive legal environments, especially in relation to sex work, drug use, or homosexuality, stigma often reinforces existing inequalities and exacerbates discrimination. Many people may avoid getting tested because of fear their status will be disclosed without their consent. Instead of targeting the public in general, prevention efforts must focus on key populations that are more vulnerable, have less access to treatment, and have lower levels of viral suppression.

As a complex global epidemic, AIDS is an illuminating case for examining how key stakeholders work across levels to coordinate their efforts. Together, the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the United Nations Population Fund (UNFPA) launched the “HIV Prevention 2020 Road Map.”<sup>9</sup> This ten-point plan highlights the need for leadership to coordinate international and community-based responses, policy change at the country level to create enabling environments, and national-level support for community-based responses. This call to action aims to create stronger linkages at the global, national, and community levels by “strengthen[ing] the national lead entity responsible for coordinating and overseeing implementation of primary prevention programmes across all sectors” and “organizing national prevention consultations...to define current prevention programme coverage and output levels based on existing data and... identify gaps.”<sup>10</sup>

The plan also articulates how to set up an accountability framework for reporting progress toward goals. The plan explains that countries should “implement social contracting and monitoring mechanisms to allow government funding for civil society implementers and, as necessary, provide support for community systems strengthening.”<sup>11</sup> It encourages the implementation of a shared accountability framework across sectors that would provide regular reporting, and it offers an HIV prevention scorecard as a methodology to assess coverage and outcomes. This monitoring tool, whose “scores are based on a combination of coverage, output and outcome indicators for key programme components in the Global AIDS Monitoring system, can serve as a useful tool for a regular review of performance at all levels.”<sup>12</sup>

Another major theme that has recurred at various points throughout the AIDS epidemic is treatment as prevention (TasP). TasP emerged as an innovation during the 1990s, when the first antiretroviral drugs were developed, although they were still prohibitively expensive. Low- and middle-income countries decided to devote their responses to the AIDS epidemics to prevention, because they could not afford to provide treatment for their citizens. For example, Brazil committed to providing treatment to all of its citizens living with HIV as part of its universal health care plan and led the charge against pharmaceutical companies to make drugs more affordable. Brazil made this commitment because they realized people would have no incentive to get tested if there were absolutely no treatment available and offering treatment became a means of prevention because it encouraged people to get tested.

Recently, TasP has re-emerged as an effective component of prevention, but this time for a different reason. Guidelines used to recommend that antiretroviral therapy (ART) should not begin until a person’s CD4 count or viral load reached a certain threshold. Now guidelines have been updated and recommend that ART treatment should begin immediately after a person is diagnosed as HIV positive. The idea behind this is that once a person undergoes treatment, their viral load will be suppressed to a low level that is not transmittable and will prevent further spread of the virus.

---

8 Richard Parker and Peter Aggleton, “HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action,” *Social Science & Medicine* 57, no. 1 (2003): 13-24.

9 “HIV Prevention Road Map: Accelerating HIV prevention to reduce new infections by 75%,” UNAIDS/UNFPA (2017).

10 Ibid.

11 Ibid.

12 Ibid.

In order for TasP to work universally, voluntary and free HIV testing must be promoted and ART must be made readily available to encourage adherence to treatment. TasP is a big part of the UNAIDS' 90-90-90 targets to end AIDS as major public health threat by 2030. The three major targets of this plan are: at least 90 percent of people living with HIV know their status, 90 percent of people that are diagnosed as HIV positive are getting treatment, and 90 percent of people on ART treatment are virally suppressed.<sup>13</sup>

## LIMITATIONS OF PREVENTION IN PUBLIC HEALTH

There are some limitations of prevention in the field of public health. One of the primary weaknesses, a phenomenon known as “elite capture,” is that most prevention efforts will reach those who are already in relatively better-off circumstances unless an intentional and concerted effort is made to reach marginalized communities. General prevention programs can exacerbate health disparities because they fail to account for intersectional vulnerabilities and do not reach the people who are most vulnerable.

It is impossible to create a prevention program using a one-size-fits-all approach. The context will vary significantly from one country to another and even among different cultural groups within the same community. What has proven to be effective in one setting may need to be significantly modified to be suitable for another. Community-based participatory approaches help to overcome these shortcomings, but they require intensive resources and long-term involvement.

## CONCLUSION

*In order for prevention efforts to be effective, they must intentionally choose the best levels for intervention and strategically engage with communities. In global efforts, local partners working at the community level are key because that is where change will actually take place. Coordinated efforts should not only utilize a top-down approach but also engage grassroots organizations on the ground that are familiar with the local context and will be responsible for implementing interventions that will serve the communities. Instead of trying to reach as many people as possible, it is more important to reach a critical tipping point, or herd immunity, in key populations that are known to be prone to violent outbreaks.*

*There are several questions to consider when contemplating how some of these lessons can be applied to conflict and violence prevention. How can we create an enabling environment that is conducive to violence prevention? What does the infrastructure for peace look like? How can we prioritize people on the frontlines, the ones being directly affected by violence, instead of the more distant government officials?*

<sup>13</sup> Joint United Nations Programme on HIV/AIDS, and Joint United Nations Programme on HIV/AIDS. “90-90-90: an ambitious treatment target to help end the AIDS epidemic.” Geneva: UNAIDS (2014).



## REFERENCES

- Andre, Francis E., Robert Booy, Hans L. Bock, John Clemens, Sibnarayan K. Datta, Thekkekara J. John, Bee W. Lee et al. "Vaccination greatly reduces disease, disability, death and inequity worldwide." *Bulletin of the World Health Organization* 86, no. 2 (2008): 140-146.
- Baum, Fran, Ravi Narayan, David Sanders, Vikram Patel, and Arturo Quizhpe. "Social vaccines to resist and change unhealthy social and economic structures: a useful metaphor for health promotion." *Health Promotion International* 24, no. 4 (2009): 428-433.
- Bhui, Kamaldeep S., Madelyn H. Hicks, Myrna Lashley, and Edgar Jones. "A public health approach to understanding and preventing violent radicalization." *BMC Medicine* 10, no. 1 (2012): 16.
- Braveman, Paula, and Laura Gottlieb. "The social determinants of health: it's time to consider the causes of the causes." *Public Health Reports* 129, no. 1\_suppl2 (2014): 19-31.
- Ehreth, Jenifer. "The global value of vaccination." *Vaccine* 21, no. 7-8 (2003): 596-600.
- "HIV Prevention Road Map: Accelerating HIV prevention to reduce new infections by 75%." UNAIDS/UNFPA (2017).
- Joint United Nations Programme on HIV/AIDS, and Joint United Nations Programme on HIV/Aids. "90-90-90: an ambitious treatment target to help end the AIDS epidemic." Geneva: UNAIDS (2014).
- Parker, Richard, and Peter Aggleton. "HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action." *Social Science & Medicine* 57, no. 1 (2003): 13-24.
- "Road Traffic Injuries Fact Sheet." World Health Organization (May 2017).
- Sassi, Franco. "Calculating QALYs, comparing QALY and DALY calculations." *Health Policy and Planning* 21, no. 5 (2006): 402-408.
- "Table 1: summary of WHO position Papers-Recommendations for routine immunization." World Health Organization (2017).
- Zhou F. "Updated economic evaluation of the routine childhood immunization schedule in the United States." Presented at the 45th National Immunization Conference, Washington, DC, March 28-31, 2011.




SSRC

Conflict Prevention and Peace Forum

2018







Supported by:

Swiss Federal Department of Foreign  
Affairs (FDFA) Human Security Division

The Conflict Prevention and Peace Forum  
(CPPF) conducted this study along with  
independent consultants retained by  
CPPF for this purpose. The findings and  
recommendations of the study are those  
of CPPF and its consultants and do not  
necessarily reflect the views or policies of  
the Swiss Federal Department of Foreign  
Affairs (FDFA).



SSRC

Conflict Prevention and Peace Forum