

# Shedding Light on Resilience Policy: Case Studies from Egypt, India, and the UK

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## Introduction

### Abstract

Resilience policy has emerged as a key focus in efforts to tackle climate change. However, the rapid mainstreaming of resilience policy raises questions about compatibility across countries—particularly between the Global North and Global South. This policy brief offers a basic introduction to resilience, alongside case studies from Egypt, India, and the UK. These case studies illustrate a variety of conceptualizations of resilience and associated policy measures. On one hand, a lack of awareness of the varied international applications of resilience can lead to coordination failures and unintended conflicts. Such gaps in policy communication stir distrust of resilience policies. On the other hand, the widespread adoption of resilience policies offers a vital platform for global action. However, the rapid spread of resilience policy calls for monitoring and evaluation to ensure effective policy coordination and international cooperation. Scholars have a role to play here in mapping and translating resilience across the policy space. Amidst the need to preserve ambiguity in international policy making, academics can offer an alternative, third-party means of stress-testing the multiple approaches and potential conflicts in international resilience policy.

Resilience policy has emerged as a key focus in efforts to tackle climate change. However, the rapid mainstreaming of resilience policy raises questions about compatibility across countries—particularly between the Global North and Global South. This policy brief offers a basic introduction to resilience, alongside case studies from Egypt, India, and the UK. These case studies illustrate a variety of conceptualizations of resilience and associated policy measures. On one hand, a lack of awareness of the varied international applications of resilience can lead to coordination failures and unintended conflicts. Such gaps in policy communication stir distrust of resilience policies. On the other hand, the widespread adoption of resilience policies offers a vital platform for global action. However, the rapid spread of resilience policy calls for monitoring and evaluation to ensure effective policy coordination and international cooperation. Scholars have a role to play here in mapping and translating resilience across the policy space. Amidst the need to preserve ambiguity in international policy making, academics can offer an alternative, third-party means of stress-testing the multiple approaches and potential conflicts in international resilience policy.

## Defining “Resilience”

There is currently no single standard definition of resilience in academia or policy. In response to this ambiguity, it is useful to

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refer to the etymology of the term. Stemming from *resilire* (“to jump back”) in Latin, resilience often refers to the ability to bounce back from shocks. However, a number of more technical definitions can also be found in the academic literature.

In engineering, resilience refers to a systems-level focus on maintaining structural integrity against external shocks. Béné et al. (2018, p. 118) offer an example in “the capacity of a material to absorb energy when it is deformed elastically and then, upon unloading, to have this energy recovered.” In engineering, resilience thus prioritizes *elasticity* over *hardness* when measuring a system’s strength (e.g., the tensile strength of wood over brick). If resilience in engineering seeks to respond to risks of mechanical failure, then resilience in ecology seeks to respond to risks of extinction. As articulated in a seminal work by Holling (1973, p. 17):

Resilience determines the persistence of relationships within a system and is a measure of the ability of these systems to absorb changes [...] and still persist. In this definition, resilience is the property of the system and persistence or probability of extinction is the result.

Evolutionary resilience and social-ecological resilience represent further variants. Instead of “bouncing back” (e.g., “Building Back Better”), evolutionary resilience entails “bouncing forward” through structural transformation (Bellini et al., 2017). Here, resilience means adapting to a new normal instead of restoring an old status quo. Social-ecological resilience similarly expands the scope of resilience concerns. Ostrom’s (2009) social-ecological systems (SES) framework integrates a broad view of human-environment interactions. Well-suited to sustainable development, this framework accommodates the intersectionality of individuals, institutions, and governance challenges.

These definitions of resilience illustrate its conceptual diversity. The following case studies evidence the different ways in which resilience policies have manifested across three countries: Egypt, India, and the UK.

## **An International Sample of Resilience Policies: Egypt, India, and the UK**

### **Resilience Policy in Egypt**

#### *Policy Environment and Resilience*

One of the national documents guiding Egypt’s sustainable development is the Sustainable Development Strategy: Egypt Vision 2030 (SDS, 2016), which lays out the country’s path towards achieving the Sustainable Development Goals (Egypt Ministry of Planning and Economic Development, 2016). While the document does not specifically outline resilience

policies, it builds on earlier documents that explicitly address resilience strategies to address climate change. Those precursors include Egypt’s National Strategy for Adaptation to Climate Change and Disaster Risk Reduction, issued in 2011, which focuses first on strengthening institutions, mechanisms, and capacities to build resilience to hazards and second on the design and implementation of “risk reduction approaches” for preparing for, responding to, and recovering from hazards (IDSC, 2011, p.12).

In Arabic, resilience (*meroona*) evokes meanings related to the flexibility of communities and their capacities to absorb and respond to the risks of climate change. For instance, in the newly launched Egypt National Climate Change Strategy 2050, resilience appears as one of the main goals (Egypt Ministry of Environment, 2022). Goal 2 is “Enhancing adaptive capacity and resilience to climate change, and alleviating the associated negative impacts.” This goal encompasses several dimensions of resilience, including establishing adaptation strategies, strengthening and improving infrastructural systems (e.g., water networks, pipes, coastal regions), implementing early warning systems in all sectors, and mitigating disaster risk. The water sector in particular lies at the center of many resilience actions.

### *National Water Resources Governance*

Water resources governance is central to Egyptian developmental strategies due to the intrinsic importance of the Nile. In the modern era, the Egyptian state has engaged in centralized policymaking related to the management of the Nile’s resources in both the agricultural and urban sectors. This centralized approach is currently spearheaded by the Ministry of Water Resources and Irrigation (MWRI), which has promulgated several national water resources plans and strategies to date. The latest plan launched in 2017 is the National Plan for Water Resources 2017–2037, which accompanies the 2050 strategy for the Ministry. The overarching goal is to provide “Water Security for All by 2037” in the face of extreme weather events, such as droughts and flash floods. The plan is built on four main pillars: creating an enabling environment, developing water resources, enhancing water quality, and rationalizing water use (MWRI, 2022). The plan was developed by the MWRI with widespread support from development partners such as the European Union, through its \$2 million Water Sector Reform Program Phase II and is complemented by a strategy to mainstream climate change within water plans (UNDP, 2018).

### *Resilience Policy Actions*

Several policy actors are involved at the local level in response to the national call to action to improve water resources management. These include the Ministry of Housing, local water

companies, the Ministry of Planning, and the Ministry of International Cooperation, which is involved in managing development partners. Two notable policy actions with a clear resilience focus are the Decent Life Initiative and the investment of global Green Climate Fund financing on adaptation and mitigation strategies.

First, the Decent Life Initiative, *Haya Karima*, is one of the largest projects to develop the Egyptian rural countryside, encompassing the generation of jobs, infrastructural projects, and the provision of basic services (The past, present,” 2022). The program was launched in 2019 and to date has spent

EGP 800 million (\$40 million; “The cost of implementing,” 2022) on improving 4,500 targeted villages in the countryside, with large investments in water infrastructure projects, including installing sewage and water systems, refurbishing water stations, and rehabilitating irrigation canals (“The past, present,” 2022). These projects strengthen communities’ access to viable drinking water and upgrade old wasteful systems. The results of this program have yet to be assessed in terms of effectiveness and efficiency in providing sustainable water access.

Second, under the 2050 national strategy, the MWRI seeks to strengthen capacities and institutions to face changes to Egypt’s waterscapes. One strategy is the building of small dams in the Sinai governorates, which have witnessed increased damage from flash floods since the early 2000s. The MWRI is also the executing entity of one of the largest adaptation projects under the global Green Climate Fund, which aims to increase and reinforce shorelines in the North Coast and the Nile Delta region (Green Climate Fund, 2017). In 2020, the project invested EGP 560 million across several governorates – among them, Alexandria and Kafr El-Sheikh – to expand beaches, submerge breakwaters, and develop dike systems (“Egypt spends EGP 560m,” 2020). These efforts represent a particularly important adaptation project, as according to the 2007 Intergovernmental Panel on Climate Change report, the Nile Delta is one of the world’s most vulnerable areas to extreme weather conditions.

## Resilience Policy in India

India signed the United Nations Framework Convention on Climate Change (UNFCCC) on June 10, 1992. India’s Initial National Communication to the UNFCCC was based on vulnerability assessment and adaptation studies undertaken in the areas of water resources, agriculture, forests, natural ecosystems, coastal zones, health, energy, and infrastructure. In 2008, the Prime Minister released a National Action Plan on Climate Change (NAPCC). Eight missions form the core of the NAPCC: the National Solar Mission, National Mission for Enhanced Energy Efficiency, National Mission on Sustainable Habitat, National Water Mission, National Mission for Sustaining the Himalayan Ecosystem, Green India Mission, National Mission for Sustainable Agriculture, and National Mission on Strategic Knowledge for Climate Change.

The NAPCC emphasizes the need to sustain high economic growth while enabling the country to adapt to the challenges of climate change and enhance the ecological sustainability of development. Our analysis focuses in particular on the National Mission for Sustainable Agriculture (NMSA). More than a half of the Indian population depends on agriculture for a living, and the sector contributes approximately 17% of the country's GDP. Furthermore, the agriculture sector is responsible for 18% of gross national emissions of greenhouse gases (GHGs), and reducing GHG emissions is a priority under the nationally determined contributions to the UNFCCC.

#### *National Mission for Sustainable Agriculture (NMSA)*

By the end of the century, the average temperature in India is projected to increase by 1.1°C to 4.1°C from the 1986–2005 baseline. The agricultural sector is particularly vulnerable to climate change as approximately 60% of India's cultivated land is rain fed, and volatility in seasonal rainfall has become the norm rather than an exception. In addition, rising average temperatures have negatively affected crop yields and labor productivity. At the same time, drought is the most serious climate risk that the country faces. Thus, the NMSA identifies program actions that cover both adaptation to climate change and mitigation of climate risks.

The central goal of the NMSA is to make agriculture more sustainable, remunerative, and climate-resilient. The pathway to achieve these goals consists of promoting integrated farming, better managing land and water resources, and leveraging the convergence of ongoing policies. Convergence is sought across multiple schemes, including employment guarantee programs (e.g., the Mahatma Gandhi National Rural Employment Guarantee Scheme), irrigation development (e.g., the Integrated Watershed Management Program, Accelerated Irrigation Benefit Program), farmer welfare (e.g., *Rashtriya Krishi Vikas Yojana*), and agriculture development (e.g., the National Food Security Mission, National Horticulture Mission, National Mission on Agriculture Extension and Technology).

A critical component of the NMSA is the development of rain-fed agricultural regions through the adoption of an area-based approach to managing land and water resources. For this purpose, labor hours under the national employment guarantee schemes are utilized. In addition, under the NMSA, on-farm management of water initiatives facilitates the adoption of irrigation technologies that improve per-drop water-use efficiency. Meanwhile, soil health management creates and links soil fertility maps with macro-micro nutrient management. Finally, the NMSA envisions platforms for the informed policies, and leverage CSA that builds the resilience of female farmers against climate shocks. In this regard, the Egyptian government's latest National Climate Change Strategy

2050 and the Sustainable Development Exchange of information on climate change variables to inform location-specific mitigation actions.

The NSMA plans are co-designed with the state governments, which in turn prepare the plan in coordination with the state district plans. As on 2016–17, approximately 77,538 hectares of land have been covered under the program, with a total outlay of ₹2.79 billion rupees.

#### *Other Resilience-Building Policy Actions for Agriculture*

Of the 54 Indian ministries, policy documents from the Ministry of *Jal Shakti* (Water Resources), the Ministry of Rural Affairs, and the Ministry of Environment, Forest and Climate are particularly relevant to resilience. Papers published by *Niti Aayog*, the primary think tank that advises the government, are also included in the analysis. The main policy actions in these documents are as follows:

- (i) Developing heat- and drought-resistant seeds – Indian ministries have increased financial allocation for research and collaboration. The Indian Council for Agricultural Research, for example, allocated ₹85.13 billion rupees for agricultural research and education in the 2022–23 Union Budget.
- (ii) Developing strategies for information dissemination – Equipping farmers with information mitigates agricultural risks. Through mobile apps, farmers access local meteorological data, information on pest management, and commodity prices. The high penetration of mobile phone ownership and network coverage enables information and communications technology (ICT) platforms to be a quick, cost-effective, and easily accessible medium.
- (iii) Establishing more soil testing facilities – Information on soil health not only improves productivity, but also saves agricultural costs. Mobile laboratories and soil testing cards have been made available for better farm management.
- (vi) Implementing long-term strategies – Forests are crucial for carbon sequestration. Currently, only 20% of the Indian land area is under forest cover; the target is 30%. Reducing land under rice cultivation is another action in this direction. Nearly 33% of agricultural land is under rice cultivation. Rice is water consumptive and produces a high share of GHGs in its production process.

### *Resilience Policy Action and Civil Society*

In addition to the government, non-governmental organizations (NGOs) also play a significant role in designing and implementing resilience-building actions in India. Their expertise lies in developing community-specific programs and orienting local communities to the ever-changing challenges posed by the climate crisis. In this way, NGOs complement the roll-out of national and sub-national policies. For example, the Watershed Organization Trust and the Watershed Support Services and Activity Network operate across multiple states and provide essential support in the last mile of project delivery.

### **Resilience Policy in the UK**

In the case of the UK, we examine resilience policies related to climate change and sustainable development across three government departments responsible for domestic and foreign policy: the Cabinet Office, the Department for Environment, Food, and Rural Affairs (Defra), and the Foreign, Commonwealth and Development Office (FCDO). The Cabinet Office serves as a coordinating body across the various UK government departments. As the name indicates, the department serves as a key pillar supporting the Prime Minister and their Cabinet. Defra, meanwhile, specializes in environmental protection. As the result of a historical merger, Defra also oversees food production and rural affairs. Finally, the FCDO attends to UK foreign policy and directly oversees development policy following the recent dissolution of the Department of International Development in 2020.

### *Localizing Resilience Policy*

Longitudinal analysis of the policy documents produced by these three departments reveals a number of key features. First, a key domestic trigger for UK resilience policy was the unprecedented floods across many parts of the country in the summer of 2007. These floods spurred the landmark Pitt Review commissioned by the government, which triggered policy measures explicitly oriented around resilience in the Cabinet Office and Defra (UK Defra, 2008).

In the case of the Cabinet Office, resilience policy was adopted in the wake of the 2007 floods in the form of sector resilience plans (SRPs). These new policy tools were designed to identify and respond to hazards and threats, including risks of both natural (hazards) and human (threats) origins. The first plans were produced on an annual basis from 2008–2015. In the period 2015–2019, the SRPs were subsequently expanded into Sector *Security* and Resilience Plans (SSRPs). In

addition to natural hazards and human threats, SSRPs also addressed a third source of risks: cyber security (and correspondingly, cyber resilience).

In the case of Defra, resilience policy was adopted in the wake of the 2007 floods in the form of climate-resilient infrastructure (CRI), reflecting the need for adaptation strategies in response to climate change. From 2008–2013, CRI was initially focused on the following sectors: energy, ICT, transportation, and water. From 2013 to 2019, there was a notable emphasis on flood and coastal resilience, alongside expansion into animal diseases (e.g., foot and mouth), food system resilience, soil resilience, and woodlands.

A key characteristic of roughly the first decade of UK resilience policy under the Cabinet Office and Defra was the domestic orientation of policies. Indeed, resilience did not appear as a key theme in FCDO policy documents until 2015, well after the Cabinet Office's first SRPs and Defra's CRI. However, the FCDO's early engagement with resilience policy extended from these early experiences.

### *Internationalizing Resilience Policy*

A marked shift occurred in the UK's internationalization of resilience policy around 2020. At this point, resilience was spreading worldwide, no longer confined at home. The COVID-19 pandemic acted as a strong driver of the UK's internationalization of its resilience policies. Preparation for the G7 Summit under the UK's presidency also paved the way for resilience to evolve from a matter of UK national security (e.g., SSRPs, cyber security, critical national infrastructure) to an integral component of the UK approach to international security (UK Cabinet Office, 2021).

This new foreign policy orientation is aptly captured in the most recent Strategy for International Development (2022). Here, resilience manifests in the explicit call for “a more open and resilient international order.” An implicit response to complicated geopolitics and returning Cold War divides, resilience policy is no longer contained at home. Instead, the prior decade of policy experience serves as a key element in the UK's “distinct offer” as a “science and technology superpower.”

Further integration of resilience ideas is evident in the UK's involvement in multilateral arenas. In addition to the country's hosting of COP26 and the G20, FCDO policy documents also point to the UK's support of climate adaptation and resilience funding through the Africa Development Bank, the World Bank, the UN Adaptation Action Coalition, and the joint UK-Canadian Climate Adaptation and Resilience research program.



This evolution illustrates the growing internationalization and securitization of resilience in UK policy. Resilience against a growing array of complex hazards and threats now plays a key role in the UK's humanitarian and development strategies as the country exports its experiences at home as part of its technical assistance abroad.

### **Policy Implications: Grounding Resilience Policy Globally**

Taken together, these case studies shed light on the variety of international approaches to resilience policy. The at-times ambiguous use of the term comes with a silver lining. In their openness and inclusivity to different views, resilience policies have the capacity to mainstream climate action across diverse sectors, actors, and geographies. However, this flexibility also enables a potentially overwhelming diversity or cacophony of policy measures. The seeming simplicity and surface-level coherence of policy discourses on resilience disguise much murkier depths. These risks and opportunities warrant a clear research and policy agenda to critically engage with resilience for the sake of inclusive and effective climate action. This agenda should comprise the following:

- **Defining resilience with respect to local capacities:** Across our case studies, resilience is equated with adaptation, flexibility, and shock absorption. However, knowledge gaps remain regarding how to adapt the concept to local contexts and action plans.
- **Drawing on critical academic research on resilience:** As is the case in discourses on sustainability, academic and civil society researchers have been persistent in grounding and translating resilience policies across local and national spaces. These actors and resources offer a basis for local inclusion and effective adaptation.
- **Enhancing South-South cooperation for policy ownership:** There is an opportunity for South-South and triangular cooperation to promote political agency, policy ownership, and effective outcomes. Given the dominance of Northern funding and security interests, there is all the more reason for Southern actors to influence this increasingly global policy platform.
- **Addressing challenges of resilience measurement and scale:** As nations struggle to balance local, national, and global priorities, fundamental questions remain regarding how to measure and monitor resilience. Open questions include which indicators and methods to use across different (and, at times, competing) spatial and temporal scales/priorities.
- **Recognizing uneven structural practices of adopting resilience as a global concept:** It is crucial to

recognize the hazards of co-optation of global concepts, which elicit the reproduction (if not exacerbation) of unequal North-South relations. In this regard, international cooperation must extend from resilience policy to resilience knowledge production. Relying merely on Northern knowledge will produce resilience policy (however diverse the policymakers) that responds only to Northern problems and priorities.

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