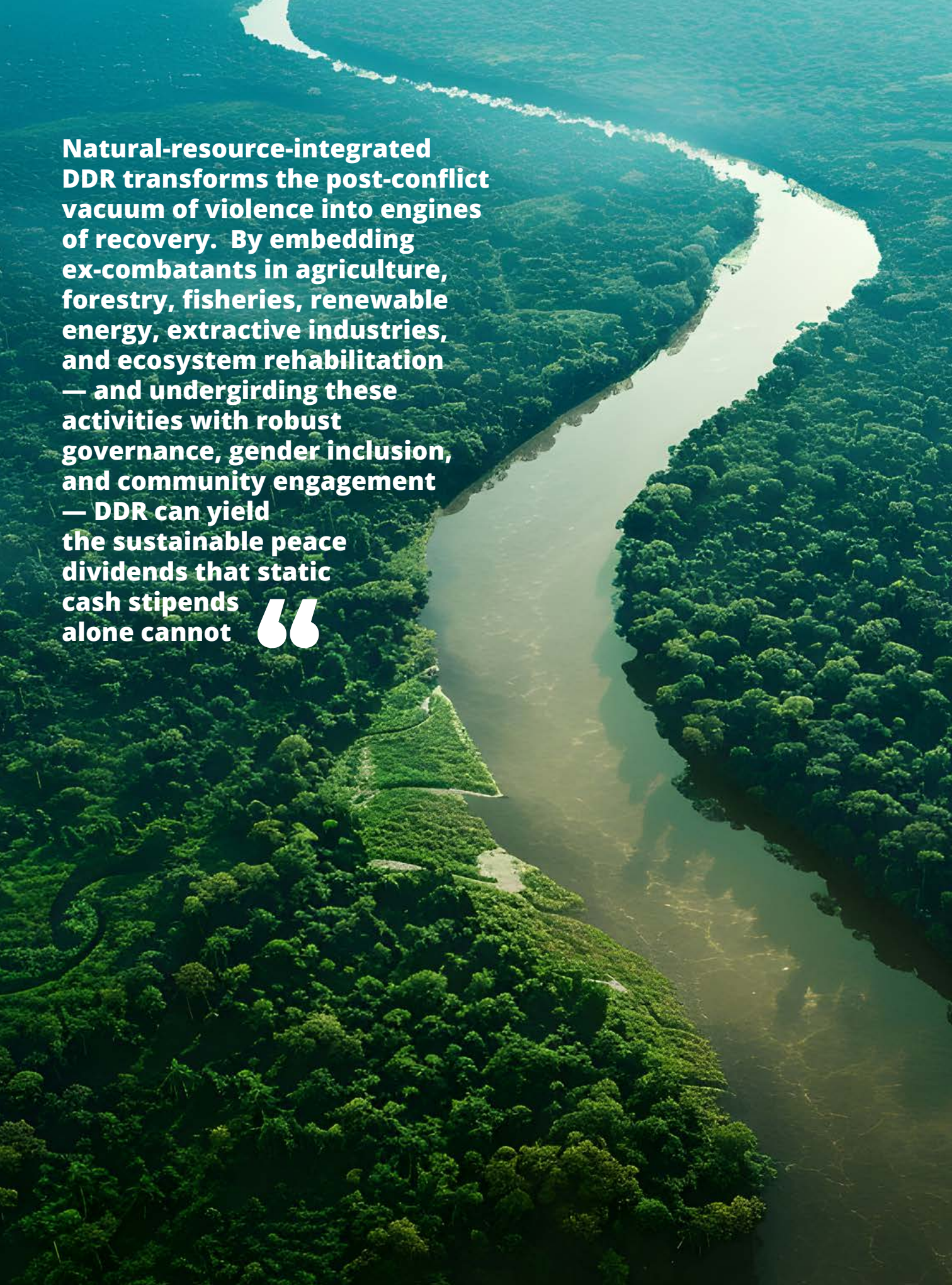

**Natural-resource-integrated DDR transforms the post-conflict vacuum of violence into engines of recovery. By embedding ex-combatants in agriculture, forestry, fisheries, renewable energy, extractive industries, and ecosystem rehabilitation — and undergirding these activities with robust governance, gender inclusion, and community engagement — DDR can yield the sustainable peace dividends that static cash stipends alone cannot**

# IN FOCUS

**by Cristian Mazzei**

## Reintegrating Peace Through Natural Resources: Enhancing DDR for Sustainable Stability

Post-conflict societies often hinge on the success of Disarmament, Demobilization, and Reintegration (DDR) programmes to transition former combatants into productive civilians. Yet, DDR too frequently stalls when it comes to securing long-term livelihoods. Ex-fighters, lacking viable economic alternatives, may cling to arms to protect illicit resource exploitation — perpetuating cycles of violence. My research highlights that embedding natural-resource-based livelihoods into DDR not only aligns income generation with environmental stewardship but also establishes the durable foundation that peace operations desperately need.

The reintegration of ex-combatants is not a quick fix but a long-term process that unfolds at individual, communal, and national levels. Programmes must avoid the perception of "rewarding" fighters with handouts; instead, they should foster lasting income, social belonging,

and political participation.[1] In eastern DRC's UNDP Community Recovery and Reintegration Programme, 39 percent of North Kivu participants depended directly on natural resources for their livelihood, compared with just 20 percent in South Kivu.[2] This disparity underscores how ineffective resource governance can incentivize combatants to remain armed — using weapons to secure illicit mining, logging, or water-control rackets.

However, DDR faces two principal obstacles that must be addressed explicitly. First, the lack of equitable control over land, water, and resource markets often leaves ex-combatants marginalized, reinforcing distrust and stalling reintegration. Second, when economic and political opportunities remain concentrated in the hands of the victorious faction, many former fighters view DDR as hollow, prompting a return to arms in search of survival.

To counteract these challenges, DDR must integrate natural-resource activities that ex-combatants can legally exploit. Agriculture and animal husbandry, for example, are prominent reintegration pathways across Afghanistan, Angola, Liberia, and Rwanda. In Afghanistan's New Beginnings Programme, former soldiers received seed kits and tools but lacked land-tenure support or modern training; still, 43 percent chose farming within

1 Mazzei, C., Ware, H. & Vom Strokirch, K., *Environmental Peacebuilding and a UN Rapid Response Force as a Counter to Conflicts over Natural Resources* (PhD thesis, 2025), ch. 6.

2 United Nations Development Programme, Community Recovery and Reintegration Programme: North Kivu, Democratic Republic of the Congo (Final Evaluation Report, UNDP, 2018).

six months.[3] In Rwanda's first DDR phase, 30 percent of participants secured formal employment, 40 percent became self-employed in agriculture, and the remainder engaged in small-scale farm work.[4] These figures demonstrate both the potential and the pitfalls of cash-and-tools approaches when they lack robust property rights and market access.

Forests and non-timber forest products (NTFPs) present another avenue. Well-managed timber cooperatives and Payments for Ecosystem Services can provide ex-combatants with income while preserving critical ecosystems.[5] Women — who shoulder the daily burden of collecting fuelwood and wild foods — benefit particularly from gender-sensitive forestry initiatives that diversify livelihoods and distribute forest-management roles more equitably. Likewise, water and sanitation projects — such as Darfur's community wells and Sierra Leone's rehabilitation of irrigation schemes — have proven to unite rival groups, improve public health, and generate employment for ex-fighters.[6]

> **"The lack of equitable control over land, water, and resource markets often leaves ex-combatants marginalized, reinforcing distrust and stalling reintegration**

Renewable energy solutions further extend DDR's reach into natural-resource sectors. Off-grid solar lantern programmes, improved cook-stove manufacturing and micro-hydro installations offer technical training for ex-combatants, reduce reliance on biomass fuels, and light schools and clinics in remote areas.[7] In the mining sector, linking DDR to artisanal cooperatives helps stem the tide of criminal exploitation. Despite the DRC's estimated US $24 trillion in mineral wealth, a $2 billion copper investment generated fewer than 3 000 formal jobs — highlighting the urgency of designing resource-industry partnerships that deliver real employment for ex-combatants.[8]

Coastal and aquatic resources also play a vital role. In Sierra Leone and Liberia, community fishing cooperatives and regulated landing sites boosted ex-combatant incomes by around 30 percent while sharply reducing re-recruitment.[9] Aceh's small-scale aquaculture ponds for milkfish and tilapia offered inclusive work for both men and women, demonstrating how ecosystem-based livelihoods can reinforce social cohesion.[10] Protected areas likewise serve as platforms for reintegration: Mozambique's Gorongosa National Park rehired 74 former combatants as park rangers in 1994, combining biodiversity recovery with the restoration of law and order.[11]

Perhaps the most emblematic example comes from Afghani-

3 United Nations Development Programme, *Afghanistan New Beginnings Programme: Demobilisation and Reintegration of Ex-Soldiers* (UNDP, 2004).
4 Rwanda Demobilization and Reintegration Commission, *National DDR Programme: First Phase Report* (Kigali, 2001).
5 UN Environment Programme & UNDP, *The Role of Natural Resources in Disarmament, Demobilization and Reintegration* (UNEP/UNDP, 2009).
6 Mazzei et al., ibid., "DDR in Water and Sanitation."
7 Mazzei et al., ibid., "DDR in EnergyX Sector."
8 Mazzei et al., ibid., "DDR in Mining and other Extractive Industries."
9 Mazzei et al., ibid., "DDR in Fisheries (Wild and Aquaculture)."
10 Ibid.
11 Mazzei et al., ibid., "DDR in Protected Areas and Ecotourism."

stan's Afghan Conservation Corps (ACC). Established in 2003, the ACC engaged ex-combatants in reforestation of pistachio woodlands and conifer forests, restoring 108 nurseries and planting 150,000 conifers and 350 000 fruit trees annually. By 2009, these efforts had generated 400,000 labour-days, simultaneously rebuilding ecosystems and forging meaningful employment.[12] Such large-scale ecosystem restoration projects deliver a triple dividend: income, environmental resilience, and community reconciliation.

Yet even when DDR programmes succeed initially, civil conflicts can reignite if resource benefits remain unevenly distributed. When a single group controls mining revenues, forest concessions, or water rights, it consolidates power and sows the seeds of new grievances — undermining reconciliation and setting the stage for renewed violence.

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Successful reintegration hinges on community support and shared ownership. DDR programmes that include ex-combatants in natural-resource management councils and community dialogues affirm their civilian status and foster reconciliation between former fighters, local populations, and the state. This participatory approach is especially crucial for women: in Côte d'Ivoire, women comprised 8 percent of the 74,000 DDR beneficiaries, while in Colombia's 2016 Peace Agreement, one-third of the more than 13,000 ex-combatants were women.[13]

Ultimately, natural-resource-integrated DDR transforms the post-conflict vacuum of violence into engines of recovery. By embedding ex-combatants in agriculture, forestry, fisheries, renewable energy, extractive industries, and ecosystem rehabilitation — and undergirding these activities with robust governance, gender inclusion, and acommunity engagement — DDR can yield the sustainable peace dividends that static cash stipends alone cannot.

## ABOUT THE AUTHOR

With two decades of UN experience, **Cristian Mazzei** is a seasoned professional in international peace and security, human rights, and governance. His roles have spanned political affairs, policy advising, planning, and program management at headquarters and in the field. As the author of the widely praised Special Assistant's Handbook, Mazzei provides practical insights for UN Special Assistants, enhancing their effectiveness and aiding senior management in optimizing office operations. He has made significant contributions to peace and security in diverse countries, including Haiti, the Democratic Republic of Congo, Lebanon, the Central African Republic, and Somalia. His work with UNICEF and UNEP, along with insights gained from UN Reform efforts in the Central African Republic, reflect his commitment to global development. Direct engagement with local communities has been a cornerstone of Cristian's career, providing him with a deep understanding of their realities and motivating his efforts to alleviate suffering.

12 Afghan Conservation Corps, *Annual Report 2009* (Ministry of Agriculture, Afghanistan, 2010).

13 Mazzei et al., ibid., "Disarmament, Demobilization and Reintegration."