

PROVIDING RURAL YOUTH IN ACEH WITH  
AN ALTERNATIVE TO FOREST CRIME:

# LESSONS FROM THE COMMUNITY RANGERS PROGRAM

The Indonesian province of Aceh has undergone a dramatic transformation since the devastating earthquake and tsunami of December 2004. The signing of a peace agreement between the Government of Indonesia and the Free Aceh Movement (GAM) in August 2005, brought an end to three-decades of civil war. The return to peace and the massive inflow of reconstruction assistance contributed to rapid economic growth and development. However, the high demand for timber for the booming construction sector strained efforts to protect the environment in a province that still hosts one of the largest and most bio diverse forest ecosystems in the world.<sup>1</sup> Following the cessation of hostilities, many former combatants and rural youth turned to illegal logging as an attractive source of income.

The Community Rangers Program (CRP), implemented by Fauna and Flora International (FFI) with a grant from the World Bank-managed Consolidating Peaceful Development in Aceh Trust Fund, provided unemployed rural youth with an opportunity to train and work as environmental stewards. The CRP combined the following two objectives: (1) to improve the economic welfare and social inclusion<sup>2</sup> of participating youth, therefore creating a viable alternative to illegal logging; and (2) to enhance environmental awareness and protection at the community-level in Aceh. This policy brief presents the results of a randomized evaluation of the CRP's social and environmental outcomes.<sup>3</sup> The study found that the program succeeded in improving the economic conditions of participant youth. It had little effect on their social inclusion. This is because, contrary to program assumptions, most participants were well integrated in their communities to begin with. The CRP's effects on environmental outcomes were mixed. The program achieved a positive effect on community attitudes towards conservation issues and contributed to a modest decrease in illegal logging. Yet, the study also found solid evidence that the program was associated with an increase in illegal mining.

These findings have a number of implications for conservation and reintegration programming in Aceh and other regions facing fragility, conflict, and environmental pressures. While the CRP was well designed to generate benefits for participating youth, better impacts on environmental behaviour may have been achieved by seeking broader community participation in livelihood activities. The CRP's unintended spillover effects on illegal mining activity are a reminder that community-level interventions can only be successful if they are implemented in conjunction with broader institutional reform, and provide community members with viable alternatives to environmentally-harmful income-generating activities. Finally, the CRP experience provides possible insights about the benefits of combining material and nonmaterial incentives to encourage youth to desist from participating in illegal activity.

This policy brief addresses the following questions:

- How successful was the CRP at improving the economic welfare and social inclusion of participants?
- How successful was the CRP at changing the attitudes and behaviour of beneficiary communities towards the environment, and at achieving measurable environmental outcomes?
- What can be learned from the CRP that might be useful for conservation or social inclusion programming in other similar contexts?

<sup>1</sup>The Ulu Masen and Leuser forest ecosystems cover almost 3 million hectares, an area equivalent to that of the Netherlands. The Gunung Leuser National Park was designated by UNESCO as a World Heritage site.

<sup>2</sup>In the context of this project and its evaluation, social inclusion refers to the acceptance of participants in their community and their constructive engagement in the community's social life.

<sup>3</sup>Laura Paler, Cyrus Samii, Matthew Liesiecki, and Adrian Morel (2015) "Social and Environmental Impact of the Community Rangers Program in Aceh", World Bank.

## INTRODUCTION

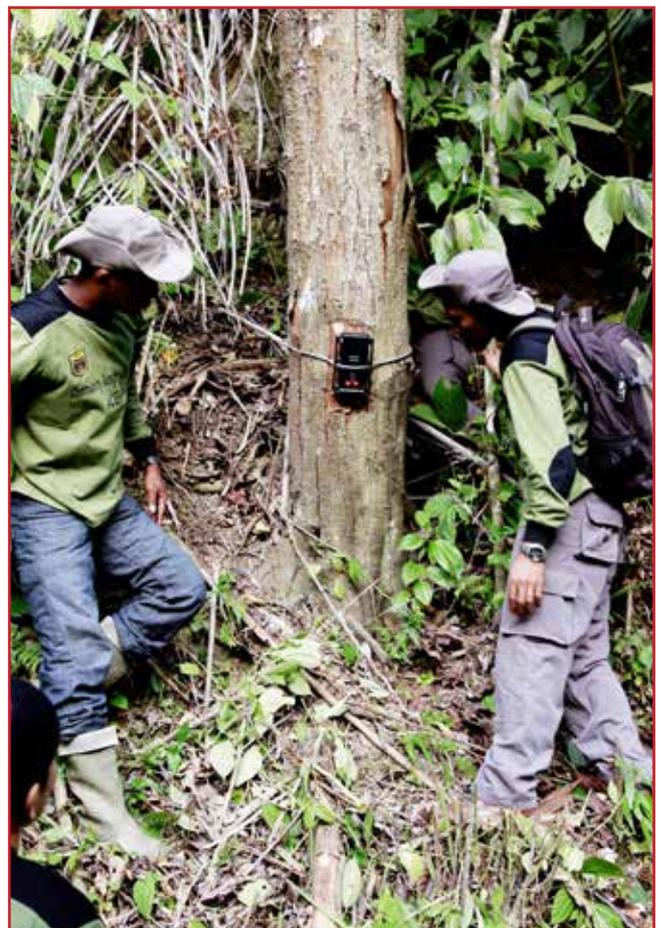
Aceh exemplifies the dilemmas involved with finding a path to rapid economic development that is also sensitive to environmental conservation. Before 2005, decades of violent conflict had spared the province from the alarming deforestation rates observable elsewhere in Indonesia. In the wake of the peace accord, the province experienced demands for a fast recovery of the economy and restored freedom of movement. This resulted in widespread illegal logging. The deforestation rate was estimated at 18,400 hectares per year between 2005 and 2009, despite an official ban on commercial logging from 2007 onwards.<sup>4</sup> There is strong anecdotal evidence that after 2005, ex-combatants and unemployed youth participated in the illegal logging. Logging was a relatively low-risk activity that generated a higher income than low-wage agricultural or construction labour. As the initial boost in economic growth driven by reconstruction efforts began to subside, the attractiveness of illegal logging increased even more. By 2009, the construction sector, which had provided employment opportunities to large swathes of the population, was already stagnant or contracting.

In a post-conflict context, the absence of opportunities for sustainable employment can contribute to grievances as expectations of improved economic welfare go unmet. International experience shows that such grievances, when shared by youth and ex-combatants, can lead to increased crime and violence.<sup>5</sup> Given that 50% of Aceh's population is under the age of 25, and a large cohort are young ex-combatants lacking marketable skills and education, policy makers in Aceh were faced with a potentially dangerous demographic and economic situation. They were also faced with difficult trade-offs between competing priorities: protecting Aceh's natural resources while at the same time shoring up economic growth and maintaining peace.

The CRP was designed to support Aceh's goal to create sustainable economic opportunities for youth in Aceh, while also addressing environmental and conservation concerns (see Box 1 below). It pursued these objectives through a set of reinforcing activities: training at-risk youth - defined as unemployed or underemployed youth between 18 and 35 - to work as forest rangers, and tasking them with undertaking activities designed to promote both environmental protection and to improve participants' standing and integration within their communities. These activities included participating in forest patrols, community outreach, and the management of environmentally sustainable livelihood projects.



*Female community rangers in Pidie.*



*The Pela Beungga Rangers set up motion-activated cameras to monitor tigers*

<sup>4</sup>Government of Aceh (2010).

<sup>5</sup>Urdal, Henrik (2004). "The Devil in the Demographics: The Effects of Youth Bulges on Domestic Armed Conflict, 1950-2000." Conflict Prevention and Recovery Working Paper No. 14. Washington, DC: World Bank.

## Box 1: The Community Rangers Program

The CRP was implemented by NGO Fauna Flora International (FFI) via a grant from Consolidating Peaceful Development in Aceh (CPDA), a trust fund managed by the World Bank and financed by Australia's Department of Foreign Affairs and Trade and the Netherlands. The project expanded on similar activities piloted by FFI under the Aceh Forest and Environment Project (AFEP) from 2007 to 2010. The CRP was implemented from September 2011 to December 2014.

The project targeted "at-risk youth" - defined as unemployed or underemployed youth between 18 and 35 - from 14 village tracts spread across six districts along the edge of the Ulu Masen forest. 280 participants (20 per village tract) were randomly selected from a long-list of eligible volunteers established by host communities. 90% of selected youth had been injured, displaced or affected by the conflict in other ways, 15% of them were former combatants, and 12% admitted having been involved in illegal logging in the past.

The CRP was comprised of the following components:

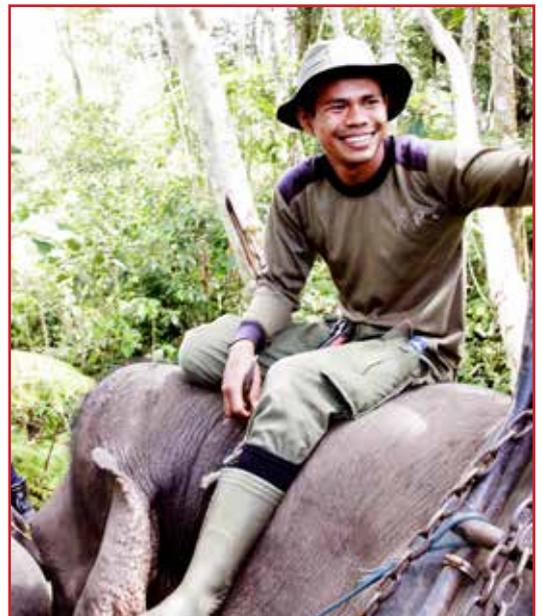
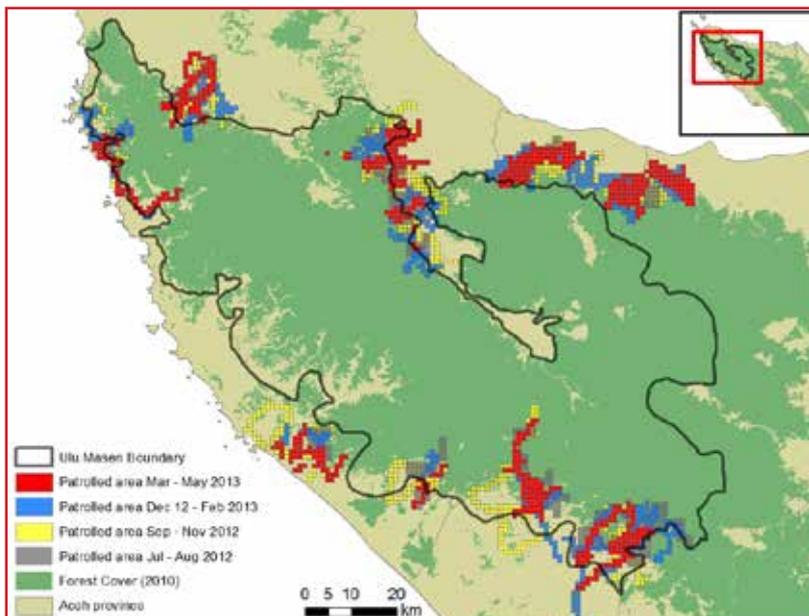
- **Training:** Participants received training on navigation, search and rescue, forest crime monitoring, human-wildlife conflict mitigation, reporting and survival techniques. In addition, Rangers received on-the-job training in relation to the implementation of the livelihood sub-grants, including preparation of business plans, accounting and financial management basics.
- **Patrols:** Rangers undertook routine forest monitoring patrols and filed reports on forest offenses to district-level police and forestry departments. During the

course of the project, the Ranger teams patrolled over 8,000 kilometres and reported 1,116 incidents, a performance unmatched by any law enforcement agency.

- **Human-wildlife conflict mitigation:** Rangers provided an important service to host communities by protecting their cultures and livestock from wildlife attacks. Ranger teams successfully responded to 118 incidents of human-elephant conflict and nine more incidents involving tigers.
- **Livelihood sub-grant projects:** Each of the 14 Ranger teams received a grant of US\$ 23,000 to start a collective livelihood sub-project (agroforestry or livestock rearing). The livelihood grants were the primary material compensation for the participants, aside from a per diem received for conducting patrols. FFI linked sub-projects with technical support from district governments and universities, and used them to train community members on sustainable agriculture techniques, and carry out livestock vaccination campaigns (approximately 700 trained; 4,000 heads of livestock vaccinated).
- **Community outreach and awareness:** Rangers led outreach and awareness raising campaigns on environmental issues, such as the relationship between watershed forest protection, water quality, and human health (approximately 5,500 beneficiaries).

A Task Monitoring Team composed of representatives of the Governor of Aceh and relevant line agencies was established to monitor progress and outcomes, and assess the suitability of the CRP model for scale-up.

Map of CRP Patrol Areas



In the mountains of Mane, Rangers use tamed elephants to patrol the forest

# METHODOLOGY

The CRP was designed to accommodate a rigorous randomized evaluation that sought to estimate the causal effects of the project on both environmental and social outcomes. To assess effects on environmental outcomes, 14 of 28 forest-edge village clusters in the Ulu Masen forest area in Aceh were randomly selected to participate in the CRP. Outcomes were assessed in four villages per cluster using household surveys, village head surveys, satellite data measuring actual deforestation rates, and ground-sourced environmental assessments. To assess effects on the socioeconomic situation of at-risk youth, 258 youth were randomly selected as participants from a larger pool of 388 eligible candidates within the 14 treatment communities. This implied a treatment group of 258 youth and a control group of 130 youth. The study surveyed youth in treatment and control communities, as well as households, and village heads, to measure the effects of serving as a Ranger on economic welfare and social acceptance. Additional observational data collected in 56 matched villages in the Leuser National Park addressed potential spillover concerns.

## FINDINGS: SOCIOECONOMIC OUTCOMES

The study found strong evidence that the CRP was beneficial with respect to improving the economic conditions of participant youth, but little evidence of effects on social inclusion. Key results are displayed in Figure 1.

**The CRP improved the participants’ perceptions of their own economic wellbeing and outlook.** The study found clear evidence of a substantial treatment effect on all subjective measures of economic welfare. Being a Ranger increased perceptions among participants that they were doing better relative to other youth. Participants were also more likely to report that they were living comfortably at their present income. They were more likely to feel their economic condition had improved over the past two years, and more confident that it would continue to improve in the future. These positive results on perceived wellbeing are

striking given that the CRP effects on objective measures of economic welfare were less conclusive. There is some evidence that being a Ranger increased the participants actual income by 20%.

The discrepancy between the effects on subjective and objective measures can be explained by the project’s approach to financial compensation. The primary material benefits for Rangers were profits from collectively-managed livelihood sub-projects. Supervision missions found that these projects were often well-managed and showed good prospects for profitability and sustainability, but the most promising ones were slow-maturing activities (such as rubber or *jabon* plantations) that would generate a substantial income only months or years after the end line data collection concluded. The findings reflect confidence in these future benefits. Consistent with this explanation, the program also had positive effects on life satisfaction and expectations of life satisfaction in the future.

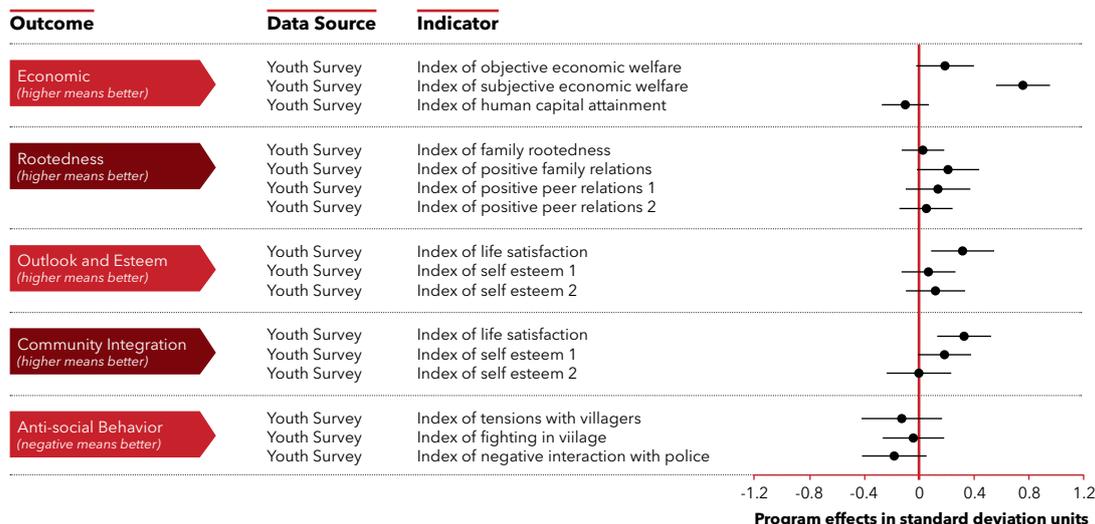
### Social inclusion was not an issue for participant youth.

One of the initial assumptions of the project was that the target group was marginalized and therefore at risk of being drawn into illegal activities. The project was designed, in part, to improve the social inclusion of at-risk youth by providing them with an economically and socially productive role in their community. While serving as a Ranger increased participation in farmers and women groups, the study found little evidence of effects on other measures of community participation and social acceptance. This is, however, largely because the project’s assumptions turned out to be incorrect. The data shows that participants were already well integrated in their communities when the project began, and did not suffer from social stigma associated with unemployment or former involvement in the armed conflict or forest crime.

### Self-reported involvement in illegal logging decreased.

The study found that the CRP caused an eight percent reduction in self-reported engagement in illegal logging, and significantly diminished the belief that illegal logging is acceptable under certain circumstances.

Figure 1. Socio-economic effects on participant youth



# FINDINGS: ENVIRONMENTAL OUTCOMES

The effects of the CRP on the beliefs and opinions of target communities towards the environment, and actual environmental outcomes, were mixed. Key results are displayed in Figure 2.

**The CRP increased a belief in the value and benefits of conservation among target communities.** The study found evidence that the program caused an increase in the belief that conservation is a good use of forestland, and that communities could benefit from it. It also increased confidence in the benefits of forest management mechanisms such as Reducing Emissions from Deforestation and Forest Degradation (REDD).

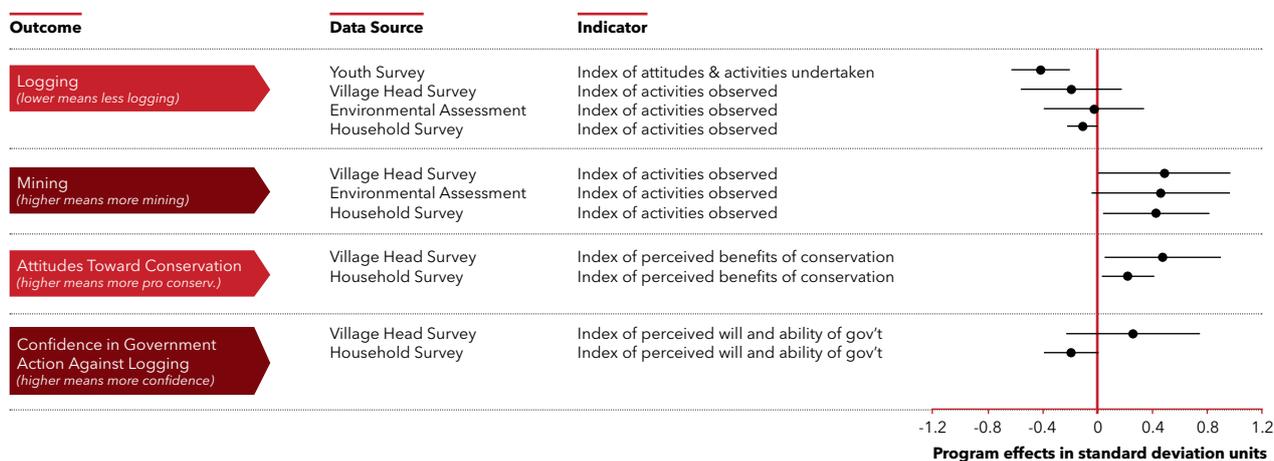
**Yet, the program was associated with mixed attitudes towards the balance between conservation and development goals, and the government’s role in forest management.** The CRP was associated with an increase in village heads’ perceptions that it is sometimes acceptable to engage in logging (not displayed in Figure 2, but still a significant effect). It reduced confidence among household heads in the government’s capacity to prevent logging, and reduced support to government control of forestland use. It should be noted that these results reflect realism and pragmatism rather than hostility towards conservation goals. It is possible that the CRP contributed to convincing villagers that there are ways to

sustainably and responsibly extract forest resources, and endowed communities with a sense that they could take on forest management responsibilities themselves.

**Illegal logging decreased, but gold mining increased.**

The CRP contributed to a modest reduction in logging activities, including both youth participation in logging, as well as more general evidence on logging activities in treatment communities. Surprisingly, the study also found strong evidence from all data sources that the program caused an increase in gold mining (corresponding to a 15-20 percentage point increase in the number of households engaged in mining, from a base rate of about 10 percent). This could be due to a *substitution* effect - by deterring logging, the CRP shifted people into illegal mining instead. It could also be due to an *opportunities* effect, where CRP patrols revealed new locations for mining. It should be noted that gold mining has been widespread and rapidly expanding in Aceh during the CRP’s implementation period, and can be a source of substantial complementary income for rural households. Switching from logging to mining has been a general trend in the region. Given that the Rangers’ training focused on the prevention of illegal logging and not mining, it is possible that the CRP’s emphasis on sensitization rather than sanctions encouraged perpetrators to adopt the view that illegal mining is a relatively benign offense.

Figure 2. Environmental effects



## LESSONS AND RECOMMENDATIONS

The CRP was well designed when it came to generating benefits for participating youth. Rangers reported that their experience was overwhelmingly positive, and 95% stated that they were willing to continue their work beyond the end of the program. The CRP was less successful in achieving convincing environmental impacts. While it had some positive effects on perceptions and attitudes, and resulted in a decrease in illegal logging, these gains were partially offset by an increase in gold mining.

The study's findings point to a number of lessons for other conservation and social inclusion interventions:

**If you want community-level change, provide community-level incentives.** Bringing about behavioural change requires substantial alteration of either norms or incentives. The benefits of the livelihood grants were concentrated almost entirely among the Rangers, and the CRP did not offer other positive inducements for the broader community. The mixed record of the program on environmental impacts could be indicative of the limits of an approach that engaged communities primarily on normative terms without matching material incentives. A revised version of the CRP should seek broader direct community participation in livelihood activities, with Rangers playing a role similar to agricultural extension agents who can facilitate the transition to environmentally friendly techniques.<sup>6</sup>

**Community-level interventions are most useful, and successful, when implemented in conjunction with credible institutional reform.** The CRP's contribution to a broader shift from illegal logging to illegal mining in Aceh highlights the importance of better anticipating the potential adverse effects of closing off specific environmentally-harmful activities without providing communities with viable income-generating alternatives. The study also points to the fact that only modest impacts can be expected from community-level interventions unless broader institutional issues related to natural resources management are also addressed. In Aceh, most of the environmental damage of gold mining is caused by large operations run by private companies with the support of local authorities. In this context, it is hardly surprising that rural villagers view small-scale illegal mining as comparatively harmless, and do not demonstrate much confidence in the government's capacity to enforce conservation regulations.

**Unemployed youth in post-conflict areas do not necessarily suffer from social exclusion.** It is often assumed, especially in post-conflict contexts, that youth and in particular young former combatants are marginalized

within their own communities, and that social exclusion is a key factor leading them to engage in illegal activity. The CRP evaluation aligns with the findings of other studies related to post-conflict interventions in Aceh,<sup>7</sup> to show that while youth and young ex-combatants might be suffering from a lack of opportunities to develop skills and generate income, they are typically well integrated and accepted within their community. The CRP was successful at delivering socioeconomic impacts not because it improved the relationship of participants with their communities, but because it addressed two barriers to their economic integration: a lack of skills and a lack of access to capital.

**Combining material and nonmaterial incentives might be an efficient way to encourage youth to desist from illegal activity.** The CRP was conducted in a context of growing interest in development interventions designed to improve youth's economic wellbeing and job prospects, particularly in post-conflict environments. An ongoing debate in this literature is over the importance of material versus nonmaterial incentives (such as status, peers, norms) in encouraging individuals to desist from illegal activity.<sup>8</sup> In that regard, the CRP is interesting as it led to significant improvements in the participants' perceptions of economic wellbeing and life satisfaction, and a decrease in their involvement in illegal logging, despite the fact that the material incentives provided by the program were largely delayed. The study's results on measures such as self-esteem and social status were inconclusive. This suggests that the expectation of future material benefits might have been sufficient to generate the positive results. However, anecdotal evidence from supervision missions points to the importance of the sense of pride and duty developed by the Rangers for playing a positive role within the community, and contributing to the greater good. This sense was particularly strong among former combatants, who often confessed having found a new cause to champion in the protecting of Aceh's forests.



*Illegal gold mining operation in Pidie*

<sup>6</sup>In designing a program with community-wide benefits, one would have to be careful to ensure that incentives were meaningful when dispersed community-wide. Conditioning on conversion to more conservation-friendly practices may also be necessary, otherwise it is not clear that common pool problems would be overcome. Under such arrangements, enforcement mechanisms would also be important.

<sup>7</sup>For example, see Barron, Humphreys, Paler, Weinstein (2009) "Community-Based Reintegration in Aceh: Assessing the Impacts of BRA-KDP", Indonesian Social Development Paper No 12, World Bank.

<sup>8</sup>See also J. Heckman and T. Kautz. 2013. "Fostering and Measuring Skills: Interventions that Improve Character and Cognition" *NBER working paper*; and Chris Blattman, J. Jamison and M. Sheridan. 2014. "Reducing youth poverty and violence: Experimental evidence from unconditional cash transfers and behaviour change with high-risk men" (Working Paper).