SURFACES: an interdisciplinary approach to simultaneously enhancing human health and biodiversity conservation in a vulnerable rainforest setting

Alan Stewart, University of Sussex, School of Life Sciences, James Fairhead, University of Sussex, School of Global Studies, Mika Peck, University of Sussex, School of Life Sciences, Jo Middleton, Brighton and Sussex Medical School, Jackie Cassell, Brighton and Sussex Medical School, Gavin Coulthart, Brighton and Sussex Medical School, Hayley MacGregor, Institute of Development Studies, Vojtech Novotny, Czech Academy of Sciences, Michael Head, University of Southampton, Steve Walker, London School of Hygiene & Tropical Medicine, Yazid Abdad, PNG Institute of Medical Research, Joao Silva, University of Brighton, School of Pharmacy and Biomolecular Sciences

BACKGROUND

Papua New Guinea’s (PNG) rainforest harbours c.8% of global biodiversity. However one quarter of its forest has been cleared or degraded, half of this by commercial logging. 97% of PNG is owned or claimed by clans as communal property, offering a potential counterweight against destructive pressures, but without alternative options for development many communities take inducements from extractive industries, even when aware of the effects this will have on ecosystem services.

At the same time, PNG is ranked 155 of 188 countries by SDG health indicator scores, only two countries outside sub-Saharan Africa scoring worse. The four most prevalent causes of health problems have remained unchanged for fifteen years, the third being skin disease, of which scabies is the most important. Sustainable development requires protecting life on land (SDG 15), and supporting good health (SDG 3), but these goals can seem in conflict. Our aim has been to build synergies (and avoid trade-offs) between conservation and health delivery, and build the foundation for a multi-year health intervention and interdisciplinary research study.

Our interdisciplinary team builds on existing University of Sussex successes in rainforest biology and conservation (Life Sciences), neglected skin diseases (BSMS), medical anthropology and the politics of conservation (IDS; Global Studies).

FINDINGS

A medical needs assessment of the Wanang community (Fig 2) was carried out in July 2018 by Gavin Colthart and Jo Middleton, together with two Papua New Guinean BRC staff with expertise in local cultural norms and language, botany, social science research and conservation biology. They:

1. Collected the medical history and clinically examined 132 of 189 village residents
2. Treated most of those examined, the commonest conditions requiring treatments or referrals being: malaria, tokelua (fungal skin disease), tropical skin ulcers, yaws (skin condition), TB, plus assorted other infections, including one acute life threatening case
3. Conducted four focus groups (6-12 individuals amongst: young men; older men; young women; older women) to establish perceptions of health problems and needs. The groups produced radically different lists of the top five health problems affecting the community:
   - Older men: malaria, cancer, tokelua, lack of reproductive health services, respiratory problems/asthma.
   - Younger women: paediatric malaria, respiratory problems/asthma, maternal health, snake bites and generalised pain.
4. Conducted a community health needs assessment

Results are currently being analysed and prepared for publication.

One important emergent issue is how lessons learnt from local studies can be scaled up to inform practices at a larger scale. With this in mind, we will be conducting a similar exercise in a different context: eight communities evenly spaced along an altitudinal transect on Mt Wilhelm (PNG’s highest mountain) from 200m to 3700m above sea level.

As a direct result of the SSRP project, we have secured £355K from the Darwin Initiative (DEFRA) for a 3-year project to:

- Incentivise and expand indigenous rainforest conservation by providing health services, specifically a nurse-staffed aid post at Wanang
- Evaluate the integration of health services into tropical forest conservation in PNG and worldwide
- Determine relationships between forest integrity and health in PNG, contrasting conservation and logging communities
- Train students and staff in biodiversity surveys and conservation

CONCLUSIONS

Remote forest-dwelling communities in PNG have challenging unmet medical needs. Provision of health services can incentivise such communities to protect their forests in preference to taking financial inducements from extractive industries.