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INTREC (INDEPTH Training and Research Centres of Excellence)

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1. EXECUTIVE SUMMARY

INTREC (INDEPTH Training and Research Centres of Excellence) was established to build capacity for research into the social determinants of health (SDH) in Low and Middle Income Countries (LMICs). The project ran from January 2012 up until June 2015, and it was supported under the Health Theme of the Seventh Framework Programme of the European Community.

The INTREC consortium consisted of six partner institutions: Umeå University, Sweden; Gadjah Mada University, Indonesia; Heidelberg University, Germany; the University of Amsterdam, the Netherlands; Harvard University, USA; and the INDEPTH Network, with headquarters in Ghana. The work revolved around a training programme on SDH research and advocacy that was developed for scientists from the INDEPTH Network in Africa and Asia. The seven focus countries were Ghana, South Africa, Tanzania, Bangladesh, India, Indonesia, and Vietnam.

The INTREC training was built on the findings of needs assessments from the seven countries, which found generally limited availability of, but high demand for SDH training, thus showing that INTREC could fill an important niche. The one-year training programme, with both online and face-to-face teaching, included the theory of SDH, qualitative and quantitative methods, data analysis, and dissemination. A total of 30 scientists were nominated by INDEPTH centre leaders to participate in the programme (43% women, 57% men), of whom 23 were actively engaged, and 11 completed all the assignments, including the production of policy briefs and presentations for stakeholders.

In spite of the high attrition rate, the programme was evaluated very positively by trainees and INDEPTH centre leaders. Gaining practical experience of field work and data analysis were seen as the most valuable parts of the training, while challenges included a shortage of time (due to other work responsibilities), limited bandwidth for online training, prior knowledge required by the course, and a need for more supervision and support. These issues are all surmountable, however, and the consortium concluded that efforts to build capacity for SDH research in these and other LMIC settings should be continued. Indeed, one of the consortium members (Gadjah Mada University in Indonesia) has taken on the INTREC concept and training materials, with a vision to become the leading centre for SDH research training in Asia, thus ensuring that programme ownership is held at local or national level in the South, and that it is not driven by Northern institutions. Our experience suggests that trainees should be paired up with a decision maker, either from the health sector, or from another sector where activities may have a health impact. Training in translating research to policy is a component that clearly needs more attention in future in order to maximise the chances of bringing about real improvements in the social determinants of health.

INTREC has been a valuable pilot exercise that has provided proof of concept of an approach to research training in a newly emerging and essential area of public health. Through the INTREC pilot, and through the complementary strengths of the different partners in the consortium, we have developed a high quality set of materials that is now in the public domain (www.intrec.info). Our experience indicates that taking the INTREC training model into the future probably requires a university base, whether in Africa or Asia; and in order to reach a network of public health scientists in LMICs, the unique global platform offered by INDEPTH may provide the best means of attaining the widest reach.

2. DESCRIPTION OF PROJECT CONTEXTS AND OBJECTIVES

Project context

The WHO's Commission on Social Determinants of Health argued in 2008 that the dramatic differences in health status that exist between and within countries are closely linked with degrees of social disadvantage. For example, the lifetime risk of maternal death is 1 in 8 in Afghanistan, while it is 1 in 17,400 in Sweden. Likewise, a baby boy born in Calton – a deprived district of Glasgow, Scotland – has a life expectancy of 54 years, as compared to the 82 years expected for a baby boy born just 12 km away, in the affluent suburb of Lenzie North[1,2].

These differences are unjust and avoidable, and it is the responsibility of governments, civil society, and researchers to work to reduce them. As a step towards reducing inequities worldwide, the WHO Commission's report provided three overarching recommendations: (1) Improve daily living conditions; (2) Tackle the inequitable distribution of power, money, and resources; and (3) Measure and understand the problem and assess the impact of action. The third of these recommendations requires the production of setting-specific, timely, and relevant evidence on the relationships between social determinants of health (SDH) and health outcomes, and yet this information is limited, especially in low- and middle-income countries (LMICs). Decision makers cannot draw up effective policies to address inequities in the absence of good data, which means that an informed cadre of individuals who can provide such data is needed. A core skill for these people must be to be able to examine the whole development process in their own countries through a health lens.

This is particularly true for issues relating to adult health and chronic diseases. Traditionally, research in LMICs has concentrated mainly on infectious diseases and younger populations. However, with ongoing demographic transitions and ageing processes to be found in many populations, it is inevitable that countries will see significantly changing disease patterns. According to a theory of cumulative disadvantage[3], the longer that people spend in the hazardous environments caused by poor economic or social circumstances, the greater the physical and mental wear and tear they will suffer, and the less likely they will be to enjoy a healthy old age. Thus there is a strong need for the development of capacity-building activities to enable research on the social determinants of adult health in LMICs.

INTREC (*INDEPTH Training and Research Centres of Excellence*) was established with this challenge in mind, and it aimed to contribute in particular to addressing the Commission's

[1] WHO (2008). Closing the gap in a generation: health equity through action on the social determinants of health. Geneva: World Health Organisation.
[2] WHO et al. (2007). Maternal mortality in 2005: estimates developed by WHO, UNICEF, UNFPA and the World Bank. Geneva, World Health Organization.
[3] Dannefer D (2003). Cumulative advantage/disadvantage and the life course: cross-fertilizing age and social science theory. The Journal of Gerontology, 58(6):S327-337.

third recommendation: the measurement and understanding of adult health inequities, and providing the basis for, as well as assessing the impact of action. INTREC ran from January 2012 up until June 2015, and the project was supported under the Health Theme of the Seventh Framework Programme of the European Community, Grant Agreement Number 282605.

The INTREC Consortium

The INTREC consortium consisted of six partner institutions. Five of these are universities: Umeå University in Sweden; Gadjah Mada University in Indonesia; Heidelberg University in Germany; the University of Amsterdam in the Netherlands; and Harvard University in the USA.

The sixth partner institution was INDEPTH – the International Network for the Demographic Evaluation of Populations and Their Health in Low- and Middle-Income Countries. With its Secretariat in Accra, Ghana, INDEPTH is an expanding global network, currently with 52 Health and Demographic Surveillance Systems (HDSSs) from 20 countries in Africa, Asia and Oceania. Each HDSS conducts longitudinal health and demographic evaluation of rural and/or urban populations. INDEPTH aims to strengthen the capacity of HDSSs, and to mount multi-centre research to guide health priorities and policies in LMICs, based on up-to-date evidence. Standardized data collection methods guarantee comparability of data across the sites, while the longitudinal nature of the data enables inquiries into causal pathways of ill health and its determinants. These assets made INDEPTH an excellent foundation on which to build, develop and evaluate a training programme for young scientists aimed at building SDH research capacity in LMICs.

The seven participating countries

The seven focus countries for INTREC were Ghana, South Africa and Tanzania in Africa; and Bangladesh, India, Indonesia, and Vietnam in Asia. These countries were chosen because INDEPTH sites within each of them had previously participated in the Network's multi-country 'SAGE' study on aging and adult health, conducted in collaboration with WHO. The WHO-SAGE collaboration with INDEPTH has generated extensive publically available data, providing a unique possibility for research on the social determinants of health in these countries.

Table 1 gives a snapshot of some key demographic and health variables in the seven countries, and these highlight a number of similarities and differences between both the countries themselves but also between the Africa and Asian regions. Overall, the African countries have younger and more fertile populations than the Asian countries, and their societies are more unequal; while the Asian countries have much larger populations and higher rates of non-communicable diseases. Important differences are also to be found between the countries in

each region, especially in the African countries: South Africa stands out as a younger and far more unequal society, as well as one with a much lower fertility rate than the others.

	Population (millions)	Life expectancy (male/ female)	Total Fertility Rate	Non Communicable Diseases as % of all deaths	Gini Index
Ghana	24	57 / 64	4.0	39	42.8
South Africa	50	49 / 52	2.5	29	63.1
Tanzania	44	53 / 58	5.7	27	37.6
Bangladesh	161	68 / 72	2.5	52	32.1
India	1,205	66 / 68	2.6	53	33.4
Indonesia	239	66 / 71	2.2	64	34.0
Vietnam	92	69 / 74	1.9	75	35.6

Table 1 – Selected demographic, health and social variables relating to the seven INTREC baseline countries [Sources: INTREC country reports, see http://www.intrec.info/publications.html]

ii. Project aims and objectives

The overall aim of INTREC has been (a) to provide SDH-related training for researchers from the INDEPTH Network of Demographic and Health Surveillance Sites in Africa and Asia, thereby facilitating the production of evidence on associations between SDH and health outcomes; and (b) to enable the sharing of this information through promoting links between the researchers and decision makers, and by ensuring that research findings are presented to decision makers in an actionable, policy-relevant manner.

INTREC was designed to work towards these overall aims through a series of six specific objectives. Each of these was associated directly with one or more of seven distinct Work Packages that formed the structure of the project. The specific objective, and their associated Work Packages, are given below. (Note that Work Package 7 involved project management, and was not directly related to any of the project's scientific objectives.)

- **Objective 1**: To produce an in-depth assessment and identification of the major training and research needs, as well as the policy issues related to social determinants of health in the seven participating countries of Africa and Asia. This was to be accomplished through the production of country reports which would include a documentary review and the analysis of qualitative interview data with key stakeholders. (Work Package 1: '*Establishing Priority areas for INTREC at national level in seven INDEPTH WHO-SAGE countries*')

- **Objective 2:** To bring together researchers, decision-makers, international experts and other stakeholders to discuss and learn about research and policy making with respect to the social determinants of health. This was to be accomplished primarily during the opening and closing project conferences, but also opportunistically over the course of the project. (Work Packages 3 and 6: '*Launch of two INTREC centres in Africa (Ghana) and Asia (Indonesia)*'; and '*Dissemination*' respectively)

- **Objective 3:** To launch two INTREC training centres for research into social determinants of health in LMICs. One was to be in Accra, Ghana (hosted by the INDEPTH Network), and it would serve Africa; the other would be based at Gadjah Mada University in Yogyakarta, Indonesia, which would serve Asia. The opening of the INTREC webpage – a portal for research on social determinants of health in LMICs – would facilitate the training by providing a medium for online learning. (Work Package 3: '*Launch of two INTREC centres in Africa (Ghana) and Asia (Indonesia)*').

- **Objective 4:** To develop an innovative, region-specific curriculum for research training on social determinants of health. The curriculum was to be based on the needs identified as under Objective 1 above, and, once developed, the training activities would be piloted, implemented, evaluated, and revised accordingly. (Work Packages 4 and 5: '*Development of the training activities*'; and '*Piloting, evaluation, and revision of the training activities*' respectively).

- **Objective 5:** To promote sustainability of capacity-building for research on social determinants of health in Africa and Asia. Issues about sustainability were to be considered over the full course of the project, and means of facilitating a continuation of the work once the EU funding has ended were to be sought. Additionally, this objective would be met through building a formal advisory group of national and international experts, key stakeholders, decision-makers and potential financers, and by inviting other such experts to our stakeholder meetings. (Work Packages 2, 3, 6: '*Establishment, development and maintenance of International Advisory Group*'; '*Launch of two INTREC centres in Africa (Ghana) and Asia (Indonesia)*'; and '*Dissemination*' respectively).

- **Objective 6:** While achievement of each objective will represent a major advance in building sustainable capacity for research on social determinants of health in the INTREC-covered countries of Africa and Asia, the overall aim is to integrate all the objectives into a conceptual framework, a set of guidelines, for building sustainable capacity for research on social determinants of health in any LMIC. (Work Package 6: '*Dissemination*').

3. INTREC MAIN RESULTS

This section of the Final Report describes the different phases of the INTREC activities, and presents the main results and lessons learned. It starts with the project's needs assessment, before discussing the training curriculum, its implementation, and the evaluation. Through this, we present what can be seen as the two main products of INTREC, that together offer a foundation for providing capacity-building on SDH research in low and middle-income countries: (i) the content and pedagogical approach; and (ii) details of the process whereby a context-sensitive, state-of-the-art capacity-building programme can be developed and delivered.

1. NEEDS ASSESSMENT

The INTREC needs assessment was intended to develop a picture of the 'supply' side of SDH training (i.e. what is currently available in the participating countries), complemented by a picture of the 'demand' side (i.e. what is wanted by the target group, namely scientists working in the INDEPTH Network). This section provides details of the needs assessment's methods and findings.

a) Methods

i. Country reports

Seven individual country reports were produced, one for each of the seven INTREC focus countries: Ghana, South Africa and Tanzania in Africa; and Bangladesh, India, Indonesia, and Vietnam in Asia. The reports aimed to identify issues within three major areas of concern: (i) key research matters regarding SDH that may be relevant in the country; (ii) training needs for research on adult health and social determinants; and (iii) SDH-relevant policies, as well as opportunities for INTREC to contribute to upcoming policy reviews. Production of each country report was led by an in-country INTREC Social Scientist (ISS), with support from the INTREC Regional Coordinators for Africa and Asia (in Accra, Ghana; Johannesburg, South Africa; and Yogyakarta, Indonesia), and with overall technical responsibility provided by Umeå University in Sweden.

The selection of ISSs started with senior staff from the seven participating WHO-SAGE study sites being requested to identify suitable candidates for the job. These could not be found in three of the countries, so other contacts and networks were used to identify and recruit qualified social scientists. The ISSs came from a variety of professional backgrounds, including anthropology, psychology, health economics, and public health.

The report production process began in February 2012, in Yogyakarta, where the seven ISSs and their trainers were hosted by the Centre for Health Service Management, Gadjah Mada University, for a one-week training programme. The aim was to introduce the ISSs to INTREC's objectives, to familiarize them with the concept and practicalities of SDH, and to work, step by step, through the standardised format for the country reports that they would produce. These country reports include a country demographic and health profile, as well as sections on ongoing SDH training in the country, SDH country needs, SDH work in the country, SDH actors in the country, SDH policies in the country, analysis of a set of stakeholder interviews that they would conduct, and conclusions and recommendations.

After the training, the ISSs returned to their respective countries and began researching the different sections of their reports. This involved internet-based searches, discussions with administrators and lecturers in training institutions, as well as a series of stakeholder interviews in each country. With feedback from their dedicated 'mentors' at Umeå University, their Regional Coordinators and, in some cases, an in-country supervisor, the reports took shape, and they were all completed by the end of September 2012. See http://www.intrec.info/publications.html for links to the individual country reports.

ii. Concept mapping

As a means of investigating the needs as seen from the demand side, we conducted a "concept mapping" study in order to investigate what INDEPTH researchers from the seven WHO-SAGE countries may want to learn in order to be able to conduct research on SDH. Concept mapping is a mixed-methods approach that integrates familiar qualitative focus group techniques (e.g., brainstorming, rating, and sorting) with multivariate statistical analyses to help describe the ideas of a group on the topic of interest in a structured way, and to represent these ideas visually through a map. The process typically requires the participants to produce a large set of statements through brainstorming, in response to a focus question; to rate each statement on one or more dimension; and to individually sort these statements into categories.

While the concept mapping methodology was initially developed for use in focus group sessions, software for web-based applications has become available in recent years. In this project we conducted a web-based concept-mapping exercise using software to support data entry and analysis.

The study took a three-step approach. First, INDEPTH scientists from all the INDEPTH centres in our seven participating countries were asked to produce as many statements as they wished in response to the following 'focus prompt': "*In order to conduct research on the causes of health inequalities in my country, I would need background knowledge on…*" We received the responses to the focus prompt via the internet over a period of about three weeks. After the statement collection process was closed, we identified and removed all duplicate statements.

We then asked the respondents to rate each statement on a five point scale in terms of how important they felt it would be for the INTREC training programme. Finally, we asked them to sort these same statements into thematic areas, based on the similarity of their content.

Ninety two researchers participated (out of 160 invited, a 57% response rate) in at least one concept-mapping activity (brainstorming, rating, or sorting). Fifty three came from INDEPTH HDSSs in Africa, 18 from INDEPTH HDSSs in Asia, 10 were academics at Gadjah Mada University in Indonesia, and 11 were individual members of the INTREC consortium.

The results were analyzed separately for INDEPTH researchers from Africa and Asia and from Gadjah Mada University and the INTREC collaboration, using descriptive statistics and cluster analysis. Concept maps were then generated for each group. This report only presents data for the African and Asian INTREC HDSS groups, and we show the different thematic areas identified by respondents in relation to each other, as well as the relative importance attached to each thematic area.

b) Results

i. Country Reports: Key SDH issues in the seven countries

While many of the social determinants of health identified in the reports varied by country, there were also several cross-cutting SDH factors that affect life in all seven countries. These included poverty, gender, geographical region, literacy, and health care availability and quality. Each of these variables plays some role in determining health outcomes in all countries of the world, and as such they could be seen as more or less universal social determinants of health.

In addition to these universal social determinants, each report highlighted issues that were particularly critical in its country of focus; although it is important to note that several of these issues were also identified in the other country reports. Examples are given here from the different country reports to illustrate the range of SDH challenges to be found in our seven participating countries.

- **Ghana – Sanitation and hygiene**. A study carried out by the World Bank's Water and Sanitation Program[4] found that 16 million Ghanaians (approximately 64% of the population) use unsanitary or shared latrines, and 4.8 million (19%) have no latrines at all and defecate in the open. Access to sanitation demonstrates high inequities; the

[4] Water and Sanitation Program (2012). *Economic Impacts of Poor Sanitation in Africa*. Available at http://siteresources.worldbank.org/INTGHANA/Resources/ghana-economic-impacts-of-poor-sanitation-in-africa.pdf

poorest 20% of the population are 22 times more likely to practice open defecation than the wealthiest 20% of the population.

- **South Africa – Migration and social exclusion**. These factors have been found to be major determinants of health in South Africa. In one study[5], immigrant Mozambican households in the rural north east of the country showed significantly higher all-cause mortality, adult and child mortality compared to South African households in the same area. Mozambicans generally have a lower standard of living, live further away from health facilities, and endure poorer sanitation and electricity supplies. Another study in the same area concluded that short term migrants are up to twice as likely to die compared to long term migrants and residents, primarily as a result of the social exclusion that they face when living in new environments.
- **Tanzania – Malnutrition and micronutrient deficiency**. Overall, urban Tanzanian children are more likely to enjoy better nutrition than rural children. One study[6] reported that 26% of urban children under five years of age are stunted, compared with 41% of rural children. Malnutrition is caused by food insecurity, poor caring practices, an unhealthy living environment, and inadequate access to quality health services – all of which are socially determined.
- **Bangladesh – Arsenic poisoning**. WHO standards permit a level of arsenic in drinking water of 10 parts per billion (0.01 micrograms per litre of drinking water), but, for practical purposes, the officially accepted level in Bangladesh is five times higher, at 50 parts per billion, or 0.05 micrograms per litre. The reason for this is the extremely high rates of arsenic groundwater contamination across the country, which some experts have described as the worst mass poisoning of a population in history. The worst affected areas are in the south and east parts of the country. More than 80 million people are at risk of arsenic poisoning, and around 6.8 million people suffer from arsenical skin lesions or other conditions such as melanosis (hyper pigmentation), leuco-melanosis, keratosis and hyperkeratosis[7].
- **India – Caste**. Social stratification in India is based on the caste system, which has been in place for a long time. The higher castes include the elite in the society, such as the Brahmins and Marathas. The lower, socially disadvantaged groups include the 'scheduled caste', 'scheduled tribes', and 'other backward class'. The majority of lower caste people live in rural areas, and they often work as agricultural labourers. Health status of the different castes can be illustrated by childhood immunization rates: in 2005-2006, the national immunization rate was 44%, but the scheduled tribes achieved only 31% of immunization coverage, while coverage for scheduled castes was

[5] Sartorius B, Kahn K, Vounatsou P, Collinson MA, Tollman SM. *Space and time clustering of mortality in rural South Africa (Agincourt HDSS) 1992-2007* (2010). Glob Health Action. Aug 30. doi: 10.3402/gha.v3i0.5225.
[6] IMF (2011). *Tanzania: Poverty Reduction Strategy Paper*. Available at: https://www.imf.org/external/pubs/ft/scr/2011/cr1117.pdf
[7] Safiuddin, S. M. Shirazi and S. Yusoff (2011). *Arsenic contamination of groundwater in Bangladesh: A review*. International Journal of the Physical Sciences Vol. 6(30), pp. 6791 – 6800

somewhat higher, at 40%. Higher castes were reported to have an immunization coverage rate of 54%[8].

- **Indonesia – Tobacco (non) legislation**. Tobacco smoking is highly prevalent in Indonesia, and is widely accepted culturally, especially among males. Boys are often introduced to smoking at an early age, and the habit is used as a means of socializing, as signifying higher status, and portraying a modern life style as well as wealth. The 2010 Basic Health Survey found smokers who had started smoking at age 5-9 years. Forty one percent of boys aged 13-15 years were found to smoke, while among girls the same age the rate was 3.5%[9]. Tobacco use is estimated to kill up to 400,000 Indonesians each year. Indonesia does not comply with international tobacco control policy efforts. It is one of the few nations that has never signed or ratified the Framework Convention on Tobacco Control (FCTC). Further, the country does not follow WHO compliance on enforcing bans on tobacco advertising, promotion and sponsorship.
- **Vietnam – Road traffic accidents**. Injury mortality rates are highly variable throughout Viet Nam. WHO estimates that road traffic injuries are the leading cause of death for those aged 15-29 years in Viet Nam. The highest road traffic injury mortality rates (60.7 per 100,000 people) are found in the low socioeconomic areas of the Northern provinces. Provinces surrounding the two largest cities of Hanoi and Ho Chi Minh City have the lowest injury mortality rates with 38.4 and 36.8 deaths per 100,000 people respectively[10].

ii. Country Reports: Policies and action on SDH

In all seven countries, we found that there are good policies relating to SDH, both within and beyond the health sector. Within the health sector, the policies cover many of the areas that one might expect to see, such as free health care for the poor and for children, national health insurance, national drug policies, and national AIDS policies.

A wide range of SDH-related policies from outside the health sector was also identified, split broadly into two categories: those that redistribute state finances to the poor; and those that seek the empowerment of disadvantaged groups through legislation and other means.

Financial redistribution is exemplified by the social assistance grants that are given out in South Africa, including the State Older Persons Grant, the Disability Grant, the Child Support

[8] Reddy, K., Patel, V., Jha, P., Paul, V., Kumar, A., & Dandona, L. (2011). *Towards achievement of universal health care in India by 2020: a call to action*. Lancet India group for universal healthcare, Retrieved from: http://www.cghr.org/publications/Lancet_Universal_Health_Care_India_series_12_January_2011_Fulltext.pdf

[9] Ministry of Health (2010). *National Basic Health Survey 2010*. National Institute of Health Research and Development, Ministry of Health of the Republic of Indonesia.

[10] World Health Organization Representative Office in Viet Nam (2009). *A leading cause of death and disability in Viet Nam*. Available from: http://www2.wpro.who.int/vietnam/sites/dhp/injury/.

Grant, the Foster Child Grant and the Care Dependency Grant. Eligibility for grants is dependent on an income-based means test. At another level, the Ghana Petroleum Revenue Management Act (2011) provides a framework to guide the efficient collection, allocation and management of revenue from that country's rapidly developing oil sector. The Act has authorised the establishment of a Stabilization Fund to take care of revenue volatility through expenditure-smoothing, and of a Heritage Fund to ensure intergenerational equity and to create an alternative source of income for the future.

A good example of an empowerment policy is to be found in Bangladesh, in the form of the National Women Development Policy (2011). The main goal of this policy is to ensure equal rights for men and women, through providing women with guarantees about their human rights, their equal and full participation in society (including issues of political and economic participation and land ownership), proper education, eradicating female poverty, eliminating all discrimination and violence against women, and ensuring nutrition and health for women. This policy is also concerned with inheritance rights for women, though this needs to be stated carefully within the context of Islamic law that also prevails in the country, since the religion has some different views about inheritance rights for women.

In spite of this raft of strong SDH-related policies, however, we found that a number of initiatives are not being effectively or fully implemented. The reasons for this were variously given as corruption; poor infrastructure; shortages of financial and human resources; mismanagement; and political opposition. All of these issues lie well beyond the reach of INTREC, but it is nonetheless important to recognise that since ineffective policy implementation is a significant part of the SDH landscape, bringing about policy change remains as a necessary but perhaps insufficient component in addressing the social determinants of health. Efforts therefore need to be made to promote proper implementation through, for example, advocacy and building alliances with other, non-governmental actors.

Such civil society groups – both national and international – work in large numbers in each of the seven countries. They deal with all manner of SDH issues in all manner of ways, including:

- **Programmatic implementation** – for example, Help Age International in Tanzania, which focuses on reducing the impact of HIV and AIDS on older people and their families; and Basic Aid in Ghana, which aims to counter the geographically inequitable distribution of mental health care services in the country by serving the poorly resourced north.
- **Operational research** – for example, the Maharashtra Association of Anthropological Sciences in India, which applies knowledge of theory and methods in anthropological sciences for community development in order to address issues of poverty, disease, deprivation, and exploitation.
- **Advocacy activities** – for example, BRAC in Bangladesh, whose work includes Legal Empowerment, and Gender Justice; and the Partnership for Action in Health Equity

(PAHE) in Vietnam, which advocates for health equity within the context of the country's rapid economic and social development.

iii. Country Reports: SDH training

SDH-related courses are offered in all seven countries, on a wide range of topics. However, (i) the number of places available for students is limited; (ii) the training tends to be public-health-oriented (since it is usually taught in Schools of Public Health) rather than inclusive of the broader, multi-sectoral issues associated with SDH; and (iii) insufficient funding places limitations on both students – who have to self-fund or obtain funding themselves – and on the training institutions themselves, thus affecting participation and quality.

Limited availability of training

The courses that we considered to be SDH-relevant included, among others, social epidemiology; child health and nutrition; applied research methods; health promotion; socio-cultural dimensions of health; health care management; and health policy, economics and finance. Most such courses take place within Master of Public Health (MPH) programmes in Schools of Public Health. However, a number of these courses are given as electives rather than core courses, meaning that some MPH graduates may not be exposed to, or have a good grasp of them. Further, since the courses are locked into programmes, students need to take the whole programme in order to take the course, and this is simply not feasible for many people (for example, decision makers or those working in NGOs).

Some courses are offered outside Schools of Public Health as part of other postgraduate curricular, or as stand-alone short courses. These include topics ranging from the Sociology of Health, to HIV/AIDS and Society, and Nutritional Security for Health and Development. Not surprisingly, SDH training is rare outside the health sector. While education is highlighted as a critical social determinant of health, few if any educational training courses in the INTREC countries cover SDH.

Overall, while there is a good diversity in the SDH-relevant courses given, the actual number of courses available for each country is quite limited. Consequently, entry into the various programmes in each of the INTREC countries is highly competitive, which means that many people who would like to receive training in SDH are unable do so. In one institution, for example, we learned that 298 applications for the 2011/2012 MPH course had been received, but only 88 students could be admitted (30% of those who applied).

Insufficient SDH-specific training

Although much of the SDH-related training takes place at schools of public health, several respondents felt that the specifics of SDH were not adequately covered in the public health training curricula, and that these courses were not practical or detailed enough to equip students with a clear conceptual grasp of SDH. Conceptually, the students are taught and will recognise that inequalities exist in society, but they are taught about these inequalities through a public health lens, not through an SDH, '*causes of the causes*' lens. Therefore, while various aspects of their courses may deal with inequities and other SDH-related issues, SDH is not the focus of the training and the link is often not made explicit. As one informant said, her students were therefore unprepared to address "real issues" when they finished their courses.

A further training gap is to be found in the relatively limited focus given in the various curricular to research methods (qualitative and quantitative), and to health economics. Both these areas are critical to SDH, insofar as they provide the basis for showing evidence (or not) of intervention effectiveness and its relationship to equity; how and why an intervention might be improved; and, importantly for policy makers, evidence (or not) of cost effectiveness for different sub-populations.

Staffing, funding, and institutional infrastructure

The issues of staffing, funding, and institutional infrastructure are intertwined, and when any of them are less than adequate, bottlenecks in the provision of education are almost inevitable. At one of the institutions surveyed, the staff reported feeling under-manned and overworked. Further, their remuneration was not seen as competitive, which meant that staying motivated was difficult, as was recruiting high quality new staff to reduce their burden.

We also learned of one case of a promising course on Social Epidemiology that was, in the end, dropped, due to insufficient funds. On a more hopeful note, reference was made to an SDH-related portion of an MPH programme whose financial security is being covered, at least for the time being, by USAID funding. While this particular financing remains quite insecure, it does nonetheless indicate recognition by the donor community of the need for such support.

As for the students themselves, few Schools of Public Health offer scholarships for their MPH programmes, which means that students need to secure their own funding. Most students are supported by their employers or by other funding agencies, but it is clearly essential that for SDH training to be accessible in such institutions, it must be made as inexpensive to students as possible in order to give those without access to substantial resources the opportunity to participate.

iv. Concept mapping

Participants in the concept mapping exercise generated 108 statements in response to the focus prompt ("*In order to conduct research on the causes of health inequalities in my country,*

I would need background knowledge on…"), which we reduced to a list of 59 mutually exclusive statements. The results from the rating and thematic clustering activities were aggregated and analyzed separately for researchers from African and Asian HDSSs. First, the means of the importance ratings assigned by participants to each statement were calculated at a group level. This resulted in a ranked list of statements for Asian and African researchers. Secondly, multi-dimensional scaling techniques and cluster analysis were used to identify how statements were grouped into thematic cluster by each group.

Table 1 gives an overview of the four top-rated statements as identified by researchers from African and Asian INDEPTH HDSSs. Examination of these shows that there was significant confluence of opinion between the two groups. Two of the four statements were the same for both African and the Asian respondents (*Translating research into policy*, and *Analysis of longitudinal data*; see the arrows), and issues to do with health inequalities (causes, measurement and analysis) were also deemed to be very important by both groups.

African INDEPTH researchers (n = 53)		**Asian INDEPTH researchers (n = 18)**	
Indicators to measure, analyse and evaluate (the dynamics of) health inequalities in different contexts	4.47	Evidence on causes of health inequalities in my country	4.50
Translating research into policy: how to package lessons learned from research projects into policy messages	4.40	Translating research into policy: how to package lessons learned from research projects into policy messages	4.42
Methods for measuring/studying health inequalities	4.37	Analysis of longitudinal data	4.33
Analysis of longitudinal data	4.33	Monitoring and evaluation methods	4.33

Table 1 – Top four statements according to importance for INTREC training programme (1=low, 5=high)

The six overarching themes or thematic clusters constituted by the 59 statements are given for both the African and Asian researchers in Table 2. The Table shows that while similar themes were found in the responses of the two groups of respondents, they were rated differently.

African INDEPTH researchers (n = 53)	**Asian INDEPTH researchers (n = 18)**
Studying health inequalities (4.00)	Research and policy (4.17)
Research methods (3.93)	Health systems (4.00)
Health of specific groups (3.83)	Social determinants of health (3.92)
Demography and health inequalities (3.72)	Research design and methods (3.92)

Health policy and health systems (3.53)	Factors causing health Inequalities (3.75)
Research support (3.32)	Social medicine (3.58)

Table 2 – SDH training needs identified by African and Asian respondents from INDEPTH HDSSs through the concept mapping exercise, by theme. (The numbers behind the cluster names indicate the mean priority rating assigned by respondents to the statements within the thematic cluster: 1=low, 5=high.)

Overall, this concept mapping exercise indicates that the INTREC training programme will fulfil its objectives if it follows a broadly similar approach for Africa and Asia, but with specific issues highlighted for each region.

c) Input from the International Advisory Group

The seven country reports, and the findings from the concept mapping exercise were reviewed by the five members of our International Advisory Group (IAG), which consists of international experts on social determinants of health, research education and capacity building. The Group was formed to provide independent and expert input regarding the development of different aspects of INTREC. Consortium members met with the IAG in Frankfurt in October 2012, and a series of important recommendations was provided. IAG members also participated in the project's two stakeholder meetings, both in Accra (March 2015 and May 2015), and they provided invaluable input into the discussions at these respective stages in the project's life.

d) Recommendations

The findings presented above indicate that our overall goal – to develop and provide a comprehensive educational programme on SDH for INDEPTH scientists in the seven countries – is very much needed, and that INTREC fills an important niche. The findings helped us, with input from the IAG, to develop the following recommendations for the INTREC training, divided into three broad categories, as below:

i. INTREC training structure and delivery

Three core areas have been highlighted in terms of course structure and delivery in order to increase accessibility to the training, and to maximize its relevance:

a. **Independent, stand-alone short courses** should be developed, rather than just those that can only be taken as part of longer degree programmes.

b. **Online media** should be used as an additional means of providing SDH education. While the availability of computers and internet coverage is not universally good in all INTREC countries, the situation is consistently improving, and the opportunity to complement face-to-face classroom teaching should be taken.
c. **Target audience** – individual teaching approaches must be taken for different audience groups (whether researchers, trainers, professional groups, or decision-makers). Clearly identifying the target audience is therefore essential.

ii. INTREC training content

Topics to be covered in the courses should include:

a. **The key SDH issues identified in the country reports**, including the cross-cutting SDH issues, and the country-specific SDH issues (as case studies).
b. **Learning to understand national political structures**, the policy process, and how to approach policy makers with research findings.
c. **Methods**: Students should be made aware of both the quantitative and qualitative tools of analysis that are available, of methods to monitor the longer term health impacts of SDH-directed initiatives, and of the challenges inherent in measuring and understanding health inequities.
d. **Inter-disciplinarity**: Educate researchers on how methods from other fields can be used to study SDH.
e. The importance of, and methodology for collecting **local/district level data**.
f. **Implementation case studies**: Examples of what has, and has not worked in different settings
g. **Economic analysis**, thereby equipping students with the ability to highlight the economic burden to government of *not* addressing SDH.
h. **Advocacy** for evidence-based SDH policy and practice.
i. **Presentation of findings** so that they can persuade, elicit interest, engage, and initiate action amongst both the policy makers and the general population.
j. **The importance and challenges of inter-sectoral action** – for example, case studies of multi-sectoral cooperation, in which students examine what was done, what challenges were faced, how much these challenges were contextual or generic, and what were the successes.
k. **Theory and practice** should be integrated.

iii. Collaboration

On the basis that the whole is far greater than the sum of its parts, INTREC should, where feasible, endeavour to collaborate with institutions and individuals who can advance the SDH agenda. These include:

a. **INDEPTH sites** – As well as offering the SDH training, we could explore the possible benefits of exchanges with other, non-INTREC HDSS centres in order to develop

understanding of specific social determinants – for example, gender – as experienced within different cultural contexts.

b. **Existing SDH research and training institutions** (such as the Ramlingaswami Centre for Social Determinants of Health in Delhi).
c. **Institutions offering SDH-related courses** (such as Schools of Public Health) as well as other training networks and collaborations (e.g. CARTA, working with PhD training in Africa).
d. **Policy makers** – Efforts need to be made to bring about proper dialogue and collaboration between researchers and policy makers. This includes identifying and working closely with **key gatekeepers** into the policy arena.
e. **Policy champions** – INTREC needs to identify individuals who can champion SDH research findings, and who are prepared to be accountable for that research.
f. **NGOs** – INTREC could support suitable NGOs by providing training in operational and evaluation research, so as to improve service provision.
g. Other **professional networks and movements**, including Asia-specific consortium of public health, UNESCAP, primary health care movement, People's Health Movement, and various local associations.
h. **Media** – SDH are not well understood by the general public, and the media (print, TV, radio, and online) should be utilised where possible to raise awareness of the issue.

2. DEVELOPMENT OF THE TRAINING MATERIALS

A draft of the INTREC curriculum and training materials was developed over the course of 2013, based on the findings from the national-level needs assessments; extensive discussions within the consortium (Heidelberg, Germany, October 2012); the output of a stakeholder meeting in Accra, Ghana (March 2013); a smaller, follow-up consortium meeting in Amsterdam, the Netherlands (May 2013); as well as the aforementioned input from the International Advisory Group. This work was led by colleagues from Harvard University.

The INTREC training programme was focused on adult health and its social determinants in the seven WHO-SAGE INDEPTH countries. By the end of the INTREC program, it was intended that the participants would:

1. Have a strong understanding of the SDH framework
2. Know the main methods of SDH research
3. Build competence in using the theory and methods as applied to their own country and data
4. Develop an understanding of the best ways to present research to policy makers and wider audience
5. Introduce local authorities to the concepts of SDH and discover ways to support SDH research and action

The training program was developed for INDEPTH scientists who were (i) interested in social determinants of health, and (ii) familiar with basic quantitative and qualitative research methods. Trainees were nominated by the leaders of eligible INDEPTH centres, each of whom had been made aware of the programme. The programme adopted a blended learning strategy, incorporating both online and face-to-face teaching.

Organizational and IT aspects

The online component of the INTREC programme was built on the Cambro online platform hosted at Umeå University, Sweden. INDEPTH scientists who were accepted onto the course as INTREC trainees were registered as Cambro course participants at Umeå. The Harvard University instructional team delivered the content of the course, teaching and course management, while technical questions were addressed by the Umeå technical support team.

The online course was based on an asynchronous student-centred learning model, in which all course materials were posted on the course website regularly and the students were expected to complete lessons and assignments independently through the system. The course consisted of seven lectures, and the students were given two weeks to complete the assignments. The instructors were also given two weeks to grade and provide written feedback for the students.

Sessions were presented through video with integrated PowerPoint slides and required reading materials. The students could view the videos, download the readings, write, edit and post assignments, view the instructors' feedback and grades, communicate with other students and the teachers via discussion forum, as well as collaborate with each other.

The SDH course on Cambro included the following elements:

- The course syllabus;
- Administrative information about the course: prerequisites, schedule, registration, lecture sessions, and contact information for the instructor;
- A notice board for current information about the ongoing course;
- The basic content of the course. This included material such as instructional text, video presentations, supporting readings and assignments;
- Additional resources as links to outside resources;
- Evaluation tools;
- Formal assessment functions, such as assignment submission, or presentation of projects;
- Support for communications, including e-mail, threaded discussions and other media, with the course coordinating assistant acting as moderator;
- Management of access rights for instructors, their assistants, course support staff, and students;
- Documentation and statistics as required for administration and quality control;

- Authoring tools for creating the necessary documents by the instructor, and submissions by the students;
- Provision for the necessary hyperlinks to create a unified presentation to the students.

Programme Organization and Format
The blended learning programme was organized sequentially in five educational blocks, as detailed below:

The first block was an online course offering a graduate level conceptual introduction to the current social determinants of health (SDH) framework and methods. The course was guided by the faculty team from Harvard University School of Public Health, USA; and it was delivered as a free, non-credit, online course from Umeå University, Sweden.

The course consisted of the following seven sessions:

i. Overview of SDH
ii. Education, SES and health
iii. Contextual influences on health
iv. Social networks and exclusion
v. Pathways from social experience to health, health behaviour and nutrition
vi. Geospatial differences: The role of social and environmental place
vii. Social policy and evaluation

The second block provided more in-depth training in research methods, and was conducted over two weeks as regional (i.e. Ghana- and Indonesia-based), mixed methods workshops on quantitative and qualitative approaches to studying the Social Determinants of Health. The quantitative methods training was delivered by faculty from Heidelberg University, Germany. The qualitative training was conducted jointly by professors from Umeå University, Sweden, and the University of Amsterdam, Holland. Both regional workshops in Ghana and Indonesia involved local specialists from INDEPTH to support the training on the ground.

The quantitative methods training introduced trainees to a range of basic and more advanced quantitative methods (correlation, linear regression, multiple regression, model building), using available WHO/INDEPTH SAGE publications, as well as demonstrating Stata routines with the WHO/INDEPTH SAGE database. Upon successful completion of the first workshop the trainee was expected to:

- Have knowledge of relevant statistical terminology;
- Be able to understand and critically evaluate the content of scientific articles on social determinants of health;
- Have acquired experience in the process of analysing data on social determinants of health;
- Be able to prepare in writing a plan for his/her own quantitative analysis.

The qualitative training aimed to offer an introduction to qualitative research methods for research on SDH for INDEPTH scholars from different disciplines. The workshop aimed to equip the trainees with an understanding of how qualitative research approaches may be useful in projects that focus on SDH, and with basic skills that are needed to design and carry out their own qualitative research projects in the field of SDH. A half-day practical session on field observation was also held, followed by group analysis and reflection on the experience. Upon completion of the second workshop the trainee was expected to:

- Understand the role of qualitative studies in SDH research;
- Be familiar with the basic requirements of a qualitative study design such as formulating a research question and planning for sampling and recruitment;
- Have basic skills in different data collection methods (in-depth interviews, focus groups, participant observation) in qualitative research;
- Understand the basics of qualitative data analysis and reporting of qualitative studies;
- To have developed a plan (the design and methodology) for a qualitative study.

In the teaching approach used in the workshop, there was a strong focus on illustrating the various topics with cases or examples from ongoing SDH work. The trainees were also expected to come to the workshop with a description of SDH problems that they may want to study.

The third block applied the learning to local data collection and analyses in the context of the researchers' countries. The goal of this workshop was to help trainees build a case study using the data from their own INDEPTH centres, and to write SDH-focused papers of publishable quality. It was offered as a hands-on data workshop to the INTREC trainees who completed Blocks One and Two. The workshop took place at the Harvard University Center for Population and Development, USA. The learning objectives for the workshop were:

- To hone a research question;
- To learn how to access and manipulate data;
- To learn how to generate descriptive statistics and figures to present data;
- To learn how to conduct quantitative and/or qualitative analysis in practice;
- To start thinking how this data makes sense in the context of preliminary SDH analyses of the country (e.g. the country reports) and other available data.

The workshop used a combination of short lectures and personal sessions with researchers. At the beginning of the workshop, the trainees briefly described the specific question they were interested in and the data set they planned to use. At the end of the workshop, they presented a first set of results, and discussed them in the context of other available data, which would ideally form the basis for a later manuscript to be submitted to peer-reviewed journals.

The fourth block was initially intended to be a brief online seminar (webinar) focusing on presentation techniques, but in the event it was held live as part of the Harvard data analysis workshop in Block 3. This block was co-developed by the Harvard Center for Population and Development and Gadjah Mada University in Indonesia, and it included a presentation and associated discussion with a specialist from Gadja Mada University, Indonesia, focusing on transferring the SDH research to social policy. A video of the presentation was also made available online for trainees who were not able to attend the Harvard workshop. The goal of this block was to help INTREC trainees build a bridge between research and policy and to learn to present their case studies in an accessible way to decision makers.

The fifth block. The program concluded with trainees preparing drafts of publishable papers and presenting the results of their research regionally to the policymakers in each country.

All the training materials are freely available online, at http://intrec.info/courses.html.

3. PILOTING OF THE TRAINING

The five-block INTREC training programme was piloted as in Table 3 below.

Training block	Content	Delivery	When and where?
1. SDH framework	Background/ theory of SDH, measurements and methods	Online course: 7 videotaped lectures + posted text and reading assignments + guided discussion	Online, starting November 2013
2. Methods to study SDH	Quantitative and qualitative methods for SDH research	Mixed methods workshop	March-April 2014; Gadjah Mada University, Indonesia April-May 2014; INDEPTH, Ghana
3. Data analysis workshop	Working with centre data towards SDH paper	Data workshop	June 2014; Harvard University, USA
4. Communic-ation strategies	Presenting research findings, developing policy briefs	Intended as an online webinar, but actually held as part of the Block 3 Harvard workshop	June 2014; Harvard University, USA
5. Sharing results of the training	Research-policy communication	Online forum	Online, from September 2014

Table 3: Structure of the pilot INTREC training

A total of 30 scientists from 9 countries (Ghana, Tanzania, South Africa, Kenya, Ethiopia, Vietnam, Indonesia, India, and Papua New Guinea) were nominated by INDEPTH centre leaders to participate in the INTREC programme. The criteria used by INDEPTH centre leaders in their recommendations concerned (i) educational level, whereby a Masters degree was seen as desirable, and trainees should also have a basic knowledge of research design and process, a basic knowledge of data collection methods, and fluent English; and (ii) availability for the training during the period over which it would be held.

Ten of the nominations came from sites in Asia and 20 from Africa, which corresponds to the proportion of INDEPTH centres in the regions. Thirteen (43%) of the trainees were women, and 17 (57%) were men. Participants from INDEPTH sites in Kenya, Ethiopia and Papua New Guinea applied to join, and were accepted onto the course even though they were not from the initial seven INTREC countries.

Of the 30 nominated students, 23 actively participated in Block 1 (the online course) and were registered on the online platform, which allowed access to the video lectures, discussion forum, and assignment upload portal. On average 4.6 (out of 6) assignments were completed by each trainee. There were 11 trainees (48%) who completed all the assignments.

A total of 31 trainees participated in the regional workshops (Block 2), of whom 16 were from Asia and 15 from Africa (some Gadjah Mada-based, non-INDEPTH participants joined the Asian workshop, hence there being additional participants for this Block). Twenty three applications were received for the Harvard data analysis workshop (Block 3), all of whom had participated in Blocks 1 and 2. Based on the online course performance and their research proposals, 14 trainees, from Ghana, Ethiopia, India, Indonesia, Kenya, Tanzania, Papua New Guinea, South Africa and Vietnam, were selected to participate in the Harvard workshop (Block 3). Block 4, which was concerned with communication strategies, was incorporated into this Harvard workshop, and as such it did not in the end take place as an online webinar.

As of June 2015, 11 papers, policy briefs and presentations for stakeholders had been prepared by INTREC trainees, based on their course work, from Tanzania, Ghana, Ethiopia, India and Vietnam.

4. EVALUATION OF THE TRAINING

i. Trainee perspectives

All teaching activities of the INTREC program were evaluated through the use of questionnaires and semi-structured interviews. These evaluations were used to collect

information from the trainees concerning their motivation for participating in the programme, as well as any difficulties they faced during the training, and any suggestions they had for future courses.

In general, the comments and enthusiasm from students for the INTREC program were very positive. Prior to the INTREC course, trainees reported being somewhat familiar with both the concept of SDH, and of having had the pedagogical experience of participating in online courses. All of them recognised the need for an INTREC-type course, as well as its potential to improve their skills as health researchers, and the importance such skills could provide to their INDEPTH centres.

The evaluation of Block 1 (the online foundation course) indicated that the main issues for trainees were concerned with time management, the prior knowledge and skills required by the course, and ensuring that sufficient support from teaching staff was available throughout the learning process. Trainees reported that the video lectures were of a high quality, clearly defined, relevant, and well taught. In some cases they suggested that the required readings and assignments could be simplified to help understand the concepts presented in the lectures. This was especially so for the assignments requiring statistical analysis (e.g. Lectures 3, 5, 7). Specific points about Block 1 which should be taken into account in future courses are:

- Trainees reported spending about 3 to 5 hours per week on the online course, mostly outside of work hours or on the weekends. The main challenge for their participating in such an online course appeared to be time management. Many trainees required more time to complete the assignments than the allotted two weeks, often due to the challenges of combining this training with their regular work duties.
- Those trainees who did not have a strong background in statistics and quantitative analysis found some lectures and the assignments to be very challenging. Further consideration should be given to trainees' prior level of knowledge, and matching the difficulty of the content to this level. Alternatively, where challenging topics and concepts are introduced, more background information, resources, or exercises should be provided.
- One critical challenge was internet connectivity. The literature was easy to download, but access to the videos was sometimes difficult.
- There were sometimes delays in receiving feedback from the online lecturers for assignments.
- Some trainees found it difficult to understand academic English in the literature.
- About half of the trainees were able to complete all of the assignments. There was a substantial reduction in the number of completed assignments in the second half of the course. Further efforts are needed to provide feedback and encouragement to students, especially in the later stages of the online course.

The evaluation of Block 2 (methods workshops) again highlighted both positive aspects and suggestions for improvement. Responses were generally similar between the Asian and African students, with trainees from both Asia and Africa finding the workshops to be of high quality and valuable for their work. Most found the group work, discussion, and interaction with researchers from other sites to be of great value.

Other key lessons from the evaluation of the methods workshops were:

- Having an opportunity to clarify the concepts of SDH from the online course, as well as develop their own research question and proposal was highlighted positively by most of the trainees;
- Gaining practical experience of field work, observation, and analysis was found to be one of the most highly valued parts of the workshops by all trainees;
- Trainees from both Asia and Africa reported that they would like more time during the workshop for analysis of quantitative and qualitative data, using computer software packages if possible;
- Some trainees from Africa felt that more of the workshop could have been devoted to more advanced statistics, the interpretation of results, and reporting in scientific publications;
- A number of trainees from Asia thought that more specific examples of high quality SDH research should be used and presented in the workshops.

As a result of Block 3 (data analysis workshop), trainees were able to improve their practical data analysis skills and develop their SDH research proposals into scientific manuscripts and policy briefs for stakeholders. The trainees in general found the feedback and advice they received in the Block 3 workshop to be of great value and a very enjoyable experience. Most felt that learning how to use data analysis software (i.e. Stata) was the most useful aspect of this workshop; but some felt that one week for this intensive workshop was not enough time. As a number did not complete their final report during this week, there needed to be time taken to complete this on their return home.

ii. INDEPTH Centre Leader perspectives

Shortly after the start of the INTREC training, in early 2014, all INDEPTH centre leaders who nominated staff members were asked to complete a short survey asking for their level of interest in SDH research. Only six centre leaders (of 15 approached) responded to the survey request, but all of these reported that this training was relevant and potentially useful for their INDEPTH site. Many also welcomed the chance to expose their staff members to training opportunities and collaboration with members of the other INTREC participating institutions. They also recognised the value of the knowledge gained through INTREC to conduct deep analysis of their site's available data.

The majority of centre leaders thought that it would be possible to give their staff member/s who were engaged with INTREC enough time to complete the online course in addition to regular duties, though some recognised that this would not in fact be feasible. Centre leaders also thought that aspects of the course should be made available for their non-research staff to increase their understanding of SDH. Others expressed the need for a course such as this to be a precursor to either a Master degree or PhD program.

During the final INTREC stakeholder meeting, held in Accra in May 2015, the nine INDEPTH centre leaders who were present were asked a series of questions about their views on INTREC. They all stated that the INTREC training was either relevant or very relevant to the work at their centre, both because SDH is a topic in which many people are interested in developing expertise, but also because staff training is an important activity in its own right for retaining quality scientists at the sites. There were mixed views, however, about the level at which the training should be pitched, with four centre leaders indicating that it should provide a post-doctorate level of training, and five preferring the target group to be Masters degree-level staff (which could also include current PhD candidates). This implies a clear need to have different levels of SDH research training in order to meet the market needs. Further, there was also an expressed need to provide external financial support for this training. As one of the centre leaders explained, "*Our willingness to pay for training is high, but our ability to do so is low*."

iii. Perspectives of INTREC Consortium Partners, the IAG, and other experts

In February 2015, after the training had ended, a written survey was sent round to all consortium members, with a series of open-ended questions about the successes, challenges, and lessons learned from INTREC. All partners provided a set of responses. The information from this survey was supplemented by notes taken during two meetings. One of these was a closed consortium meeting (held in Umeå in March 2015), and the other was the project's final stakeholder meeting (held in Accra in May 2015), which was attended by all consortium partners as well as members of the International Advisory Group, trainees, INTREC Social Scientists (who had compiled the country reports in Work Package 1), HDSS centre leaders, and people with a range of SDH expertise. The main points raised during the discussions and in the survey are consolidated here.

The overall feeling towards INTREC was very positive. INTREC has created a new cohort of SDH-aware scientists from Ghana, Kenya, Tanzania, Ethiopia, South Africa, India, Vietnam, Indonesia and Papua New Guinea. This group of scientists will be integrating social determinants into their public health research, and sharing their newly acquired knowledge and competence with their colleagues at home as well as across other low and middle income countries. The consortium's overall conclusion was that the concept of building capacity for SDH research through a combination of teaching methods, online courses and workshops, as

well as mentoring for junior researchers to produce scientific publications or policy documents, can and should be developed further, and provided for young scientists in LMIC settings beyond the original INTREC countries. The critiques and other points given below should be seen within the context of this positive assessment.

a) The training itself

In general terms, it is clear that the programme was rated very highly, both by trainees and centre leaders. All trainee expenses were paid, the teachers were excellent, the course was multi-disciplinary and of high quality, and trainees were engaged in the practical use of data from their own HDSS sites. All of this constitutes the essential prerequisite for considering issues such as sustainability and any sort of future development for the programme: If the training had not been seen as useful, there would be no reason to discuss a future INTREC-type training.

But in spite of the positive feedback, trainee attrition was high. Of the 30 who signed up, only 23 were active in the programme, and only a small handful of the original group completed all the assignments. Fewer still produced a draft paper ready to be submitted for publication. Why was this?

Our discussions highlighted several broad issues that contributed to this high attrition rate. First, the fact that there was no official course accreditation reduced motivation for some trainees. The motivation to take part was purely scientific, to learn, and it did not have anything to do with receiving a certificate or diploma. For some trainees, this was not sufficient.

Second, for various reasons, the online course (Block 1) presented the most difficulties. This was partly because of technical difficulties (for example, concerning limited bandwidth), but the course was also time-demanding, which made it difficult for many of the trainees to watch the videos, do the readings, and also tackle the assignments in the two weeks allotted to each lecture. HDSS staff are paid by different projects, and they are of course obliged to do the work for these projects. For some, it was difficult to find time during normal working hours to do all their INTREC work on top of their normal work. Some online training is essential for this sort of programme, however, and therefore it may be important to consider having some face-to-face training run first in the programme, followed by the online work. On this basis, the trainees would then know and encourage each other through their sense of belonging to a group, and the online training would perhaps run more effectively.

Third, in spite of the criteria suggested to centre leaders for nominating the trainees at the beginning, the online course and the subsequent workshops were too difficult for some participants. For future INTREC-type training, it would be important to create a better match

between the actual competencies of the trainees and the educational level of the programme. This could involve stratifying trainees into two groups based on their prior knowledge in future, so that people with different pre-knowledge receive different levels of tuition.

Fourth, more ongoing supervision and support could have been provided for trainees throughout the course. Some trainees felt that they did not receive timely feedback on their assignments in Block 1, for example, which reduced motivation. Some of the trainers also felt that the trainees were not sufficiently equipped with writing skills to manage their papers without considerable support, but this was difficult to provide from a distance. Therefore, local trainers, possibly including centre leaders, could support and push the work forward.

A further issue to do with the training – though this would probably not have contributed to the high attrition rates – was the recognition of a disconnect between the broader SDH issues that were identified in, for example, the national-level needs assessments, and the variables included in the HDSS datasets that were available for analysis by the trainees during the programme. These datasets tend to be predominantly quantitative and focused on proximal variables, to the exclusion of the broader, distal SDH issues that also very much need to be addressed. It is clear that some centres have more SDH-relevant and policy-relevant data than others, but it would be important for future training to think about how to collect data concerned with the broader social determinants within the contexts of the individual HDSSs.

b) Sustainability, and the need for action

Issues of programme sustainability arise at different levels, and these must be addressed if there is to be any future for an INTREC-style approach to SDH research training. Sustainability issues can be seen at two levels. On the one hand, there is the question of supporting the programme to continue at all, which is linked to funding and human resources to conduct the training; while on the other hand, there is the need for trainees to be supported throughout and beyond their participation in the programme, so that their individual work has a sustained impact on the social determinants of health in the real world. In order for sustainability at either of these two levels, a key principle is that programme ownership must be held at local, national and/or regional levels. Any future programme should not be driven by Northern institutions, although it would be entirely appropriate for these to provide technical support as necessary.

As far as funding is concerned, we received important advice from a representative of a funding agency who told us that financing for this type of training would be more easily attained, and the programme would thereby become more sustainable, if the core goal of the training was on problem-*solving*, not on problem-*raising*. Much of INTREC's focus in the methodological training and data analysis blocks was on *measurement* of problems, but there was not so much about making an impact on the problem. We should strive to see change as

the output, and not the research itself; and to achieve this, we need to work backwards from the change that needs to happen, and then identify what needs to be done in order to bring about that change. On this basis, the two guiding principles to be followed to ensure sustained funding should be to:

a) Focus on specific issues and objectives (i.e. not try to do everything);
b) Focus on making a difference through the work (i.e. be action-oriented).

Overall, the INTREC training was not sufficient for fostering solid links between research and policy, and therefore other ways to build this connection could be considered for the future. These could include, for example, implementation and operational research, policy research, and participatory rural appraisal. Another potentially effective approach would be to work on the basis of a 'Community of Practice' model. Communities of Practice are groups of individuals with shared interests who come together in person or virtually to tell stories, to share and discuss problems and opportunities, discuss best practices, and talk over lessons learned.[11] Using the Community of Practice principle, trainees would engage with decision makers from the outset of their training at local, district or national level, asking them about the problems they face and the evidence that they need to solve them. Importantly, and within the context of a 'Health In All Policies', SDH approach, it is also essential to engage with other actors in the process, including those outside the health sector. The gains that have previously been made on SDH have always been made through public and policy and technical movements, and we have to work with these people, and think more laterally so that we can build effective alliances with appropriate groups and networks.

A Community of Practice approach such as this would require more work from the HDSS centre leaders, and it would also mean that relatively fewer trainees could be taken through the process, as it may be labour-intensive to arrange for the key contacts to be made and sustained; but it would, however, ensure that the training is inherently more focused on problem solving rather than problem raising, and it would thereby create a win-win situation for both trainee and decision makers. It would also ensure that the training is contextualized for each site and each country, while simultaneously educating the decision makers about the concept and importance of SDH – which itself would constitute an important outcome. Trainees must recognise that addressing SDH is not just about writing briefs and papers, but also about the practical issues of reaching out to the right people at the right time, and seizing opportunities within the policy sphere as they appear.

An important lesson from previous work conducted on SDH, such as that done by EQUINET,[12] is that a sustained commitment to the process is required, as well as political space in which to work. Sometimes this space closes up, and it becomes necessary to wait for a later

[11] Wenger E (1998). Communities of Practice: Learning, Meaning, and Identity. New York. Cambridge University Press

[12] EQUINET is the Regional Network for Equity in Health in East and Southern Africa. See www.equinetafrica.org

opportunity in which to act. The fact that this work involves complex systems, as well as multiple disciplines and actors, means that commitment to the issue has to be sustained in order to make a difference over the longer term. Success cannot be achieved in just a few years, even when working within the context of a strong network.

With regards to supporting trainees throughout and beyond the programme – another key issue of sustainability if SDH-trained researchers are to translate what they have learned into action – it is clear that mentors must continue to work with them even after the training has officially ended. Several trainees ended the project with incomplete papers because there was nobody available to support them through to the end of the process. There are many well qualified people who are willing and available to provide mentorship, but this work often comes on top of an already overburdened agenda. Senior researchers who can mentor may be expensive, and the costs for this must be included in budget plans. Ensuring that costs and fees for trainers and mentors are covered, and that a network of such professionals is developed and maintained, is a key to sustained training. The relationship between junior and senior people has to be supported.

c) North-South division of responsibilities, and HDSS site ownership of the programme

An important critique of the INTREC training was that although the target group was Southern-based scientists, the programme was developed and delivered mainly by the consortium's Northern partners. In future, it would be very important to ensure greater participation and ownership by Southern partners.

There was a suggestion, for example, that it may be helpful to think in terms of a division of labour, whereby Southern trainers, who understand their respective contexts (which is essential for working in SDH), teach these aspects of the programme; and, where necessary, Northern partners can provide technical support and training about researching within those contexts. HDSS centre leaders could also be brought more into the process, from identifying SDH to be addressed, to identifying, encouraging and giving feedback to trainees so that they finish the course, and do something with what they have learned. Apart from (hopefully) improving quality and reducing attrition rates, this could also increase local ownership of the training, thereby enhancing its sustainability, relevance and impact.

d) Effectiveness of University-based vs non-University-based INTREC training design

One of the questions we wanted to answer through the piloting of the INTREC training concerned the relative effectiveness of, and identification of the issues associated with a University-based design (as with the centre at Gadjah Mada University in Yogyakarta) as opposed to a non-University-based design (as with the centre at INDEPTH, a non-governmental organisation based in Accra).

There were differing opinions about this within the consortium, with some arguing that the distinction was artificial: both models used INDEPTH sites as a means of recruiting trainees, and both models used external trainers to provide the education. Further, while their approach and contributions to the work was naturally based on different models, they were both very effective in terms of project implementation and output.

However, the two institutions did certainly play different, and complementary roles. The INTREC trainees from both Africa and Asia came (apart from some Asian participants in Block 2) from INDEPTH sites, with the INDEPTH secretariat playing the key role in recruitment. INTREC was also designed specifically with INDEPTH scientists in mind. By contrast, Gadjah Mada faculty played an active part in the teaching and in creating training materials for the trainees, which the INDEPTH secretariat did not do. Without INDEPTH, INTREC would not have been possible; likewise, without Gadjah Mada, INTREC would have had a completely different flavour.

As a university, conducting technical training is core business for Gadjah Mada, and since SDH is not taught anywhere else in Indonesia, they took the initiative in 2014 to develop an SDH research training programme for Asia, based on INTREC materials. Our colleagues requested agreement from the other five consortium partners for the training materials to be made available to them for this purpose – which was readily granted by all partners – and they will now be running a version of the INTREC curriculum starting in September 2015. The course will be funded over the short term by the University, which, it is hoped, will provide the basis for a sustainable programme. The team has previous experience of blended learning approaches to training, and they will use the INTREC curriculum and materials, though with the addition of more case studies, and – unlike with INTREC – with face-to-face studies coming first, followed by online work. Trainees will be targeted from other Indonesian universities as well as from their own, and they also plan to bring young policy makers into the training: the Bureau of Planning within the Ministry of Health in Jakarta is actively interested in learning more about SDH. Trainees will also be recruited from Vietnam.

Through the INTREC pilot, and through the complementary strengths of the different partners in the consortium, we have developed a high quality set of materials that is now in the public domain (www.intrec.info). Our experience indicates that taking the INTREC training model into the future probably requires a university base, whether in Africa or Asia, but in order to reach a network of public health scientists in LMICs, the unique global platform offered by INDEPTH may provide the best means of attaining the widest reach, and of building a strong global cadre of scientists who are able to conduct and effectively disseminate the findings of their SDH research.

4. POTENTIAL IMPACT, DISSEMINATION AND EXPLOITATION OF RESULTS

INTREC has been a valuable pilot exercise that has provided proof of concept of an approach to research training in a newly emerging and essential area of public health. This section of the Final Report starts by outlining the project's dissemination activities (conducted and planned); and it also provides details of the plans of one our consortium partners (Gadjah Mada University) to exploit the project's results by initiating an SDH training programme for Asia, using many of the principles, teaching materials, and lessons learned from INTREC. The document concludes with a presentation of a conceptual framework, based on the INTREC experience, which we believe provides an actionable basis for developing SDH training in LMICs in the future, thereby maximizing the potential impact of our work.

1. INTREC dissemination activities

We have disseminated the findings of INTREC widely since the start of the project, in a number of different fora, ranging from partner websites, conference presentations, peer-reviewed articles, country reports, and policy briefs. Below we provide details and, where appropriate, links for the main dissemination activities that have been conducted to date, and we also outline our intentions for some future dissemination activities.

i. Project website

Details of all aspects of the INTREC project, the consortium partners, the training materials we have developed, and our publications are available at http://www.intrec.info/index.html.

ii. Reports by consortium partners

- Umeå University:
  - Information about the project, University website: http://www.phmed.umu.se/english/units/epidemiology/research/show-research-projects/?code=755&currentView=description&doSearch=&scbCode=&searchString=
  - Annual Report 2014, Epidemiology and Global Health Unit, Department of Public Health and Clinical Medicine: http://www.phmed.umu.se/digitalAssets/158/158815_annual-report-2014-till-webben.pdf
- INDEPTH Network:
  - INDEPTH Quarterly Newsletter Report on INTREC's first stakeholders' meeting in Accra (March 2013):

http://indepth-network.org/newsletter/1st%20Quarter%20Newsletter%20INDEPTH.pdf
    - Report on the mixed methods workshop in Accra (May 2014): http://www.indepth-network.org/index.php?option=com_content&task=view&id=1757
    - After final stakeholders meeting in Accra (May 2015): http://indepth-network.org/index.php?option=com_content&task=view&id=1946
- Harvard University:
    - Article in Bow Street Bulletin, Harvard Center for Population and Development studies, Fall 2014: "*Training in social determinants of health goes global*" https://cdn1.sph.harvard.edu/wp-content/uploads/sites/1266/2014/10/POP_FALL_2014_with-shield.pdf
- Gadjah Mada University:
    - The University's SDH website (www.sdh-asia.net) was born out of the INTREC project. It is a bilingual site which provides biweekly news, current topics and other e-materials. It is enriched with learning resources, such as video and case lessons for the SDH course being offered by Gadjah Mada (see Section 2 below). The site will also be the main point for communication and interactive medium for course participants to submit their assignments and inquiries, and through which the trainers will give their responses.
- Heidelberg University:
    - A brief description of the project is given at https://www.klinikum.uni-heidelberg.de/INTREC.126488.0.html

iii. Presentations

- Oral presentation, INDEPTH Network Scientific Conference, Maputo, Mozambique; October 2011: "*Building sustainable capacity for research on health and its social determinants in LMICs*"
- Oral presentation, INDEPTH Network Annual General Meeting, Hanoi, Vietnam; November 2012: "*What can INTREC offer INDEPTH*?"
- Poster for the 1st International Conference on Global Public Health, Colombo, Sri Lanka, December, 2012: "*Addressing social determinants of health – INTREC*"
- Oral presentation, 7th Post Graduate Forum on Health System and Policy, Phitsanulok, Thailand, June, 2013: "*Reducing health inequity in Indonesia through a comprehensive training on social determinants of health among researchers and policy maker*"
- Oral presentation, INDEPTH Network Scientific Conference, Johannesburg, South Africa; October 2013: "*Introduction to the INTREC training*"

iv. Peer-reviewed articles

These articles have been produced *either* as a means of documenting the INTREC project itself, and lessons learned (written by consortium staff), *or* as products of the project's needs assessment exercise or training (led by social scientists affiliated to the project or INTREC trainees, and supported by consortium staff):

- Mtenga S, Shamba D, Wamoyi J, Kakoko D, Haafkens J, Mongi A, Kapiga S, Geubbels E. *How long-distance truck drivers and villagers in rural southeastern Tanzania think about heterosexual anal sex: a qualitative study*. Sex Transm Infect. 2015 Jun 25. (Highlighted by UNAIDS Science Now, July 2015)
- Haafkens J, Blomstedt Y, Eriksson M, Becher H, Ramroth H and Kinsman J. *Training needs for research in health inequities among health and demographic researchers from eight African and Asian countries.* BMC Public Health 2014, 14:1254.
- Nahar N, Blomstedt Y, Wu B, Kandarina I, Trisnantoro L, Kinsman J. *Increasing the provision of mental health care for vulnerable, diaster-affected people in Bangladesh*. BMC Public Health 2014;14:708.
- Susilo D, Eriksson M, Preet R, Padmawati S, Kandarina I, Trisnantoro L, Kinsman J. *Reducing health inequity in Indonesia through a comprehensive training on social determinants of health among researchers and policy makers*. BMC Public Health 2014:14(Suppl 1):O2.
- Hofman K, Blomstedt Y, Addei S, Kalage R, Maredza M, Sankoh O, Bangha M, Kahn K, Becher H, Haafkens J and Kinsman K. *Addressing research capacity for health equity and the social determinants of health in three African countries: the INTREC programme*. Glob Health Action 2013, 6: 19668

v. INTREC country reports and policy briefs

Seven comprehensive country reports were produced as part of INTREC's initial needs assessment, and disseminated to national decision makers and other relevant stakeholders:

- Bangladesh
- Ghana
- India
- Indonesia
- South Africa
- Tanzania
- Vietnam

Policy briefs, based on the country reports, have been produced and disseminated to national decision makers and other relevant stakeholders in:

- Ghana
- India
- Indonesia
- South Africa
- Vietnam

All the country reports and policy briefs are available at:
http://www.intrec.info/publications.html

vi. INTREC training materials:

The INTREC training materials include videos (hosted on YouTube), literature, datasets for use in exercises, lecture notes etc., and are all fully and freely accessible to anyone with an internet connection, without registration or payment, at http://www.intrec.info/courses.html.

vii. Papers that are planned or under development:

(a) Commentary piece, focusing on the global need for SDH training, and the potentials in using INDEPTH-type, demographic data and scientists as a means of taking this forward;
(b) Conceptual paper, based on the conceptual framework that is presented later in this document, which can be used to promote and support SDH research training in LMICs;
(c) Evaluation of the INTREC training, including details of the surveys and interviews conducted with trainees, as well as the feedback from the trainers and other consortium members;
(d) Action against smoking in Indonesia, to be based on a development of the Indonesia country report, and led by colleagues from Gadjah Mada.

viii. Planned dissemination activities

The activities and the regional course to be run by Gadjah Mada starting in September 2015 (see Section 2 below) will be presented at the 9th Postgraduate Forum on Health Systems and Policy in Kuala Lumpur, Malaysia; 14-15 September 2015.

2. Exploiting the results and maximizing the potential impact of INTREC: The creation of a Centre for SDH training in Asia

One of the six INTREC consortium members – Gadjah Mada University in Yogyakarta, Indonesia – has taken on the INTREC concept and training materials, with a vision to become the leading centre for research training in social determinants of health for Asia. The colleagues at Gadjah Mada are basing their vision on what they describe as a 'Community of Practice', a group of people with a shared profession or a passion for a particular issue, in this case SDH. The Gadjah Mada Community of Practice includes around 12 staff members and graduate students, key senior individuals in the University hierarchy, the putative trainees, as well as local and national level policy makers who are known to the initiators of the project. Financial support to start up this version of the INTREC training has been provided by Gadjah Mada University, and it is hoped that the Government of Indonesia will also provide

fellowships for some trainees who may not otherwise be able to join. As indicated in Section 1(ii) above, a website has been set up – www.sdh-asia.net, which provides reciprocal links to INTREC's own website – as a means of promoting the course. The first cohort of trainees will join the course in September 2015, and they will complete their studies by April 2016. The course is expected to run on an annual basis.

Following the basic principles of INTREC, the aim of the course will be to:

- Facilitate and develop trainees' understanding of, and research into SDH;
- Support participants to publish a paper on social determinants of health in a peer-reviewed journal;
- Support participants to communicate their research findings to relevant politicians and government agencies.

The course will follow the same pedagogical principles as INTREC, with a blended learning approach which will include trainees starting with an online, theoretical training block, followed by face-to-face, classroom-based methodological and analytical sessions. It is expected that participants will spend 4-5 hours per week over the duration of the 8-month course, and as such, the course will suit people, such as policy makers and researchers in distant or remote areas, who may not be able to enroll in full time, face-to-face studies. Applicants must be citizens from the Asia-Pacific region, they should have access to their own data for analysis, and they should be either MPH or MSc graduates, or newly graduated PhD candidates. The output of the course for each trainee will include a manuscript for publication, and a policy brief based on research that they themselves will have conducted.

It is expected that trainees will have to pay about $2,500 to cover their application fees and the costs for attending the face-to-face blocks of the course (i.e. accommodation and transport). Six fellowships are available annually from Gadjah Mada University, and the course organizers are searching for additional sponsorship opportunities. They expect to have 10-15 participants during the first year (2015-16), 15-20 participants during 2016-17, and 20 participants annually from then onwards.

A business plan and strategy has been developed for the course, based on a comprehensive SWOT analysis. The outlook is seen as promising, based on a number of important points: the strong support given to the course by the University Rector and by the Dean of the Faculty of Medicine; free use of the already-developed and piloted INTREC teaching materials and concept; time availability of the mentors in Gadjah Mada and in its network; as well as the course organizers' extensive experience in web-based teaching.

Over the coming 5 years, a number of specific objectives for the Gadjah Mada SDH research training have been delineated:

- Improving the website as the platform for delivering the online training;

- Organizing Courses in Bahasa Indonesia for domestic purposes;
- Obtaining additional donor support in order to provide fellowships for trainees from other ASEAN countries ;
- Enhancing the integration of the work with policy makers who are engaged in issues to do with SDH;
- Seeking to ensure accreditation of the course as part of Gadjah Mada's Public Health PhD programme;
- While the course will stick closely to the INTREC model during the first year, it will evolve according to needs, developments and opportunities that arise.

3. A conceptual framework for conducting sustainable SDH research training in Low and Middle Income Countries

Through the development, piloting, and fine-tuning of a freely accessible, high quality set of training materials, INTREC has provided the opportunity to learn many practical, logistical and other lessons. This section presents a distillation of these lessons, and provides a roadmap to guide future efforts aimed at developing sustainable capacity for SDH research in LMICs.

Two figures and accompanying text are presented below, that together constitute a conceptual framework outlining the key relationships and processes that we consider as essential in any attempt to maximize the potential future impact of what we have done and learned in the INTREC programme. By presenting this conceptual framework, we believe the results of our collective work can be exploited to full advantage, both by members of the consortium who want to take it further themselves, but also by anyone else who may want to learn from our experience. To this end, we also aim to publish the basic principles outlined here in an international, peer-reviewed journal in the coming months.

The two complementary figures below show the importance for the successful implementation of an INTREC-type SDH research training of (i) having an effective Community of Practice (COP) engaged in the process (Figure 1); and (ii) of ensuring that a series of clearly defined stages in the training process follow on from each other (Figure 2). Both of these are, we believe, necessary if an effective SDH training experience is to be conducted. Importantly, we define an 'effective' programme as one that goes beyond training and the publication of academic papers to include establishing a basis for taking *action* towards addressing the social determinants of health. Thus such a training will lead *both* to the creation of a cohort of trained SDH researchers, *and* to action to address SDH in policy and practice.

Figure 1 provides an illustration of the actors in the COP who, based on our experience, are needed in order to mount an effective SDH research training programme. The COP includes people with a broadly shared vision on SDH, and it includes the trainees themselves, their

HDSS centre leaders, university-based academics and trainers (nationally and internationally), donor agencies, and decision makers at local and/or national level from the health and other sectors who would like to take an evidence-based approach to their own work.

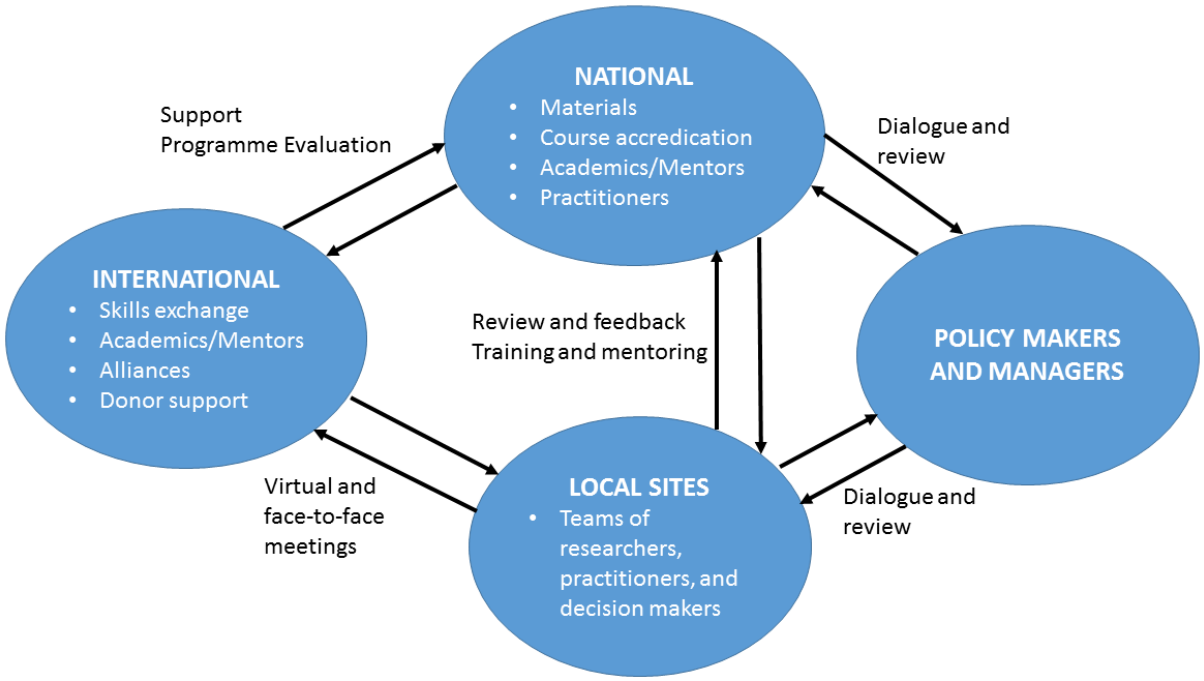

Figure 1: A Community of Practice for research training and action into the social determinants of health – different levels of actors, their roles and relationships

The COP includes a range of different types of actors working at different levels, all of whom have an important role to play if the project is to succeed. The local level is where the data will be collected and where action is, hopefully, taken, so it is especially important to have a strong network of actors at this level. Our training model recommends that trainees are paired up with a decision maker, either from the health sector, or from another sector where activities may have a health impact. The relationship between the trainee and the decision maker is crucial for the success of the work, and it should run on the basis of mutual benefit: the decision maker will receive empirically-based guidance from the trainee as a means of solving a problem that they face; and the trainee receives hands-on exposure to real world policy problems and how to deal with them. A major lesson from INTREC is that ownership and engagement by HDSS centre leaders/bosses is also critical for a successful programme: the trainee needs to be given sufficient time from their job in order to do the training; and if they are to be paired up with a decision maker in order to make their research policy-relevant, the relationship will need to be facilitated, which will probably require effort and initiative from the centre leader. In spite of the extra effort, as well as the potential expenditure of social capital by the centre leader, the consensus among the INTREC partners, including

among several of the HDSS centre leaders with whom we have spoken, is that this is a price they would be willing to pay as long as the potential benefits for their site are made clear.

The SDH research training is provided primarily by university-based academics from the same region of the globe, but not necessarily from the same country as the trainee. These academics will be responsible for ensuring that the course is properly accredited so that trainees can receive formal academic credits for their work. This has proven to be an important motivator for the trainees: ensuring proper accreditation is likely to reduce trainee attrition over the course of the programme. Further, in collaboration with the internationally attached colleagues, these academics will also adapt the training materials before each new round of training, based on the evaluations of the previous rounds.

Technical support, for example in relation to specific research methodologies, may be provided as necessary by international academics and mentors. Funding is likely to be predominantly sourced internationally, although the initiative of Gadjah Mada in Indonesia shows that national or even locally-sourced financing can be sufficient to act as seed money to kick-start a project. International funding is likely to be needed, however, in order to facilitate dialogue and support between actors at different levels within the COP, through both virtual and occasional face-to-face meetings.

With the COP in place, Figure 2 outlines a process that we believe would provide a good basis for implementation of a sustainable programme for SDH research capacity building and action. The process starts at the top left corner of the Figure with the products of the INTREC pilot project, which feed into the SDH research training centre's own COP. From there a cycle of training takes place:

a) *Selection of trainees*: Trainees from an INDEPTH site or equivalent research centre apply, and are accepted into either a basic or a more advanced level course according to specified application criteria. (Our experience suggests that courses both for Masters level and for PhD level candidates would be seen as useful). Every effort should be made to ensure a good gender balance of trainees in each intake. Trainees are assigned a mentor and, with support and guidance from their site leader, they are introduced to and, hopefully, paired up with a local or national level decision maker, from either the health or another sector, with whom they will work.
b) *Theoretical training*: The training begins with a set of theoretical lectures, which will be provided online. Feedback from INTREC trainees indicates that the training will be enhanced if there is at least one face-to-face meeting of all trainees *before* the online work begins, as this facilitates group cohesion and offers the possibility for peer-to-peer support during the online training. This mutual support network may not be available if the students have not met, and attrition rates may therefore be higher. The training includes equal coverage of both quantitative and qualitative methodological approaches, and it should also cover implementation/operational research, policy

research, and participatory action research. In situations where bandwidth is limited, trainees should be sent a memory stick in advance with all the relevant video lectures, readings, and assignments.

c) *Practical training*: In coordination with their mentor, site leader, and, critically, their assigned decision maker, trainees define their research question. This could be done based on an approach that works *backwards* from a recognised problem: what change/s need to take place in order to address this problem, and what data could be used and analysed in order to support that change in the policy and practice spheres? Relevant data will then be collected.

d) *Data analysis*: Analysis takes place iteratively, with the trainee producing preliminary results and then meeting (virtually or face-to-face) with their mentor, site leader, and their assigned decision maker in order to receive support and guidance, and to ensure that the analysis is moving in a direction that will be policy-relevant.

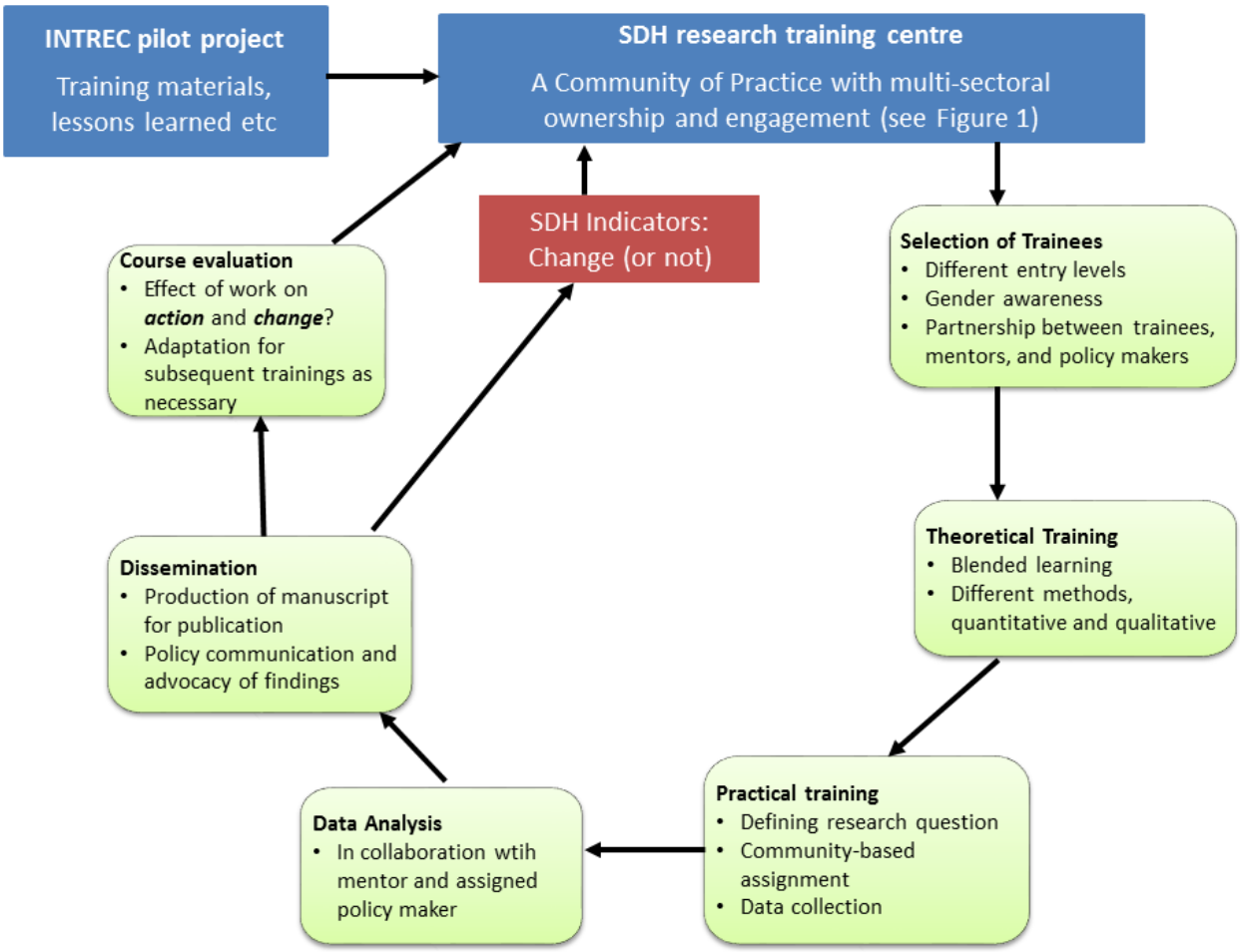

Figure 2: Conceptual Framework for building sustainable SDH research capacity, and action

e) *Dissemination*: A manuscript is developed for publication in a peer-reviewed journal, which – the INTREC experience has shown – may require continued support from the

mentor beyond the end of the formal training. This mentorship needs to be funded. The trainee and the decision maker then work together to ensure that the findings are presented in an actionable and policy-relevant fashion, and that advocacy takes place in the appropriate policy and practice fora. Translating research to policy was the weakest link in the INTREC programme, and this component clearly needs more attention in future in order to maximise the chances of linking the two spheres.

f) *Course evaluation*: The course evaluation should include assessment of the training itself, but it should also assess the extent to which change may or may not have taken place in the relevant SDH, as well as why/why not. Lessons learned from this will then be fed back to the COP who may consider how it may be necessary to adapt the process for the next round of training.

4. Final recommendations

A core topic of discussion during our final stakeholder conference, held in Accra in May 2015, was sustainability of the work that we have initiated. INTREC has proven to be a highly successful project, and we feel strongly that efforts should be made to support a continuation of the development of the concept and its implementation. To this end, we have two recommendations for the EU, which provided generous support over the 42 months of INTREC's life:

i. A cohort of young SDH researchers in LMICs has been established, who are interested in learning more about SDH, and in integrating SDH further into their research. To support this, we recommend that the EU:
   - Provides resources to sustain this network of young researchers;
   - Supports mentorship for the researchers by experienced national and international colleagues.

ii. A strong local partner has emerged (Gadjah Mada University) who is determined to continue developing the INTREC concept by becoming a pan-Asian centre for SDH training and research. We recommend that the EU supports the establishment and development of this centre. The training programme has of course already been developed by INTREC, and the basic infrastructure is in place, but funds are needed to support:
   - Participation of field researchers in the training (i.e. accommodation and flights for the face-to-face components of the work);
   - Outreach and dissemination activities through the SDH-Asia website;
   - Lecturers and mentors (both local and international);

Technology that can provide distance-learning activities

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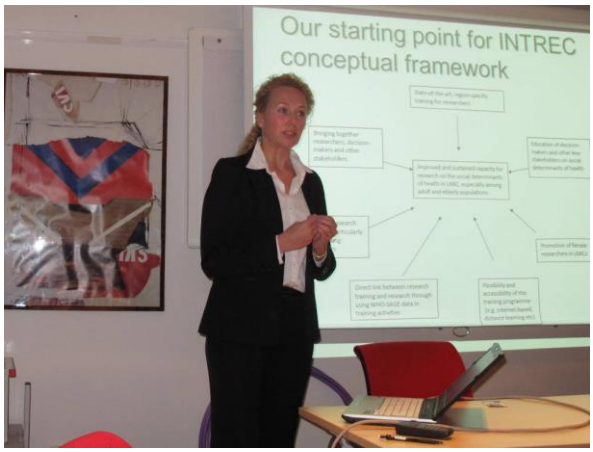
2. Photos from INTREC meetings, conferences, trainings etc.

Kick-off meeting in Umeå, Sweden, January 2012



ISS training in Gadjah Mada University, Yogyakarta, Indonesia, February 2012

WP4 meeting in Heidelberg, Germany, October 17-18, 2012

Stakeholders' meeting in Accra, Ghana, March 19-21, 2013

WP4 meeting in Amsterdam, May 27-29 2013

Workshop on Quantitative and Qualitative research methods for social determinants of health, Yogyakarta, April 1-11, 2014

Workshop on quantitative and qualitative research methods for addressing inequities and social determinants of health in Africa, Accra, Ghana, May 12-23, 2014

INTREC Data Analyses and Writing Capacity Workshop - June 16-21, 2014 Harvard Center for Population and Development Studies, Boston, US

Consortium meeting in Umeå, Sweden, March 26-27, 2015

Stakeholders conference, Accra, Ghana, May 21-22, 2015

Report from the May 2015 stakeholders meeting on the INDEPTH Facebook page

https://www.facebook.com/permalink.php?story_fbid=1005210059521625&id=232689103440395

INDEPTH Network har lagt till 19 nya foton.
den 26 maj kl. 08:21 ·

INTREC stakeholders conference held in Accra

Forty-six participants (46) have attended the INDEPTH Training and Research Centres of Excellence (INTREC) Final stakeholders conference in Accra from May 21 – 22, 2015.
The INTREC programme was developed to provide junior researchers in Africa and Asia an opportunity to improve their understanding of the framework and concepts of Social Determinants of Health (SDH) and to enable them to present their research findings in an actionable form to decision makers. Read more: http://indepth-network.org/index.php...

Pictures show participants during the various sessions of the two days forum.

Visa översättning

Gilla · Kommentera

Bra Kwame Adjomah, Tathagata Bhattacharjee, Vijendra Ingole och 8 andra gillar detta. Senaste

1 delning

Peter Byass Many thanks to our colleagues at INDEPTH for organising this INTREC forum so effectively - despite frequent power failures and other challenges it was a very useful meeting that will make a major contribution to the final report on INTREC.
Visa översättning
1 · den 26 maj kl. 10:49

INDEPTH Network We are very happy to hear this, thank you!
Visa översättning
den 27 maj kl. 03:53