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Turning information into action

A technical review of World Vision's Early Warning Early Action System (EWEAS)

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Cover: Horn of Africa drought and food crisis: Somali refugees await registration and food distribution on 14 August 2011 at the Dadaab refugee complex. Photo: Journalturk/iStockphoto. Outside back cover illustration: RonTech2000/iStockphoto.

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'By using the "Buster" Early Warning Early Action tool we have been able to generate timely and credible early warning information at community, national, and regional office levels. This information was communicated to World Vision decision makers at different levels in the simplest way so that they can take actions as early as possible. Though there have not been major crises in the past one year that needed action, I know the management has been using the information.' (Tesfaye Ararsa, World Vision Ethiopia)[1]

1. Executive Summary

Paper structure and main findings

'Turning Information into Action' presents a technical review of the implementation of World Vision's Early Warning Early Action System (EWEAS) after 18 months of field testing in 13 countries in the East and Southern Africa region following the 2011 Horn of Africa (HoA) food crisis. EWEAS is not merely concerned with the need for better disaster prediction and early humanitarian response but also with 'the need for a fundamental shift in development practice.'[2]

The paper is divided into six sections. Section 1 introduces the HoA food crises and discusses the rationale for a more effective system of Early Warning (EW) and Early Action (EA). Section 2 reviews relevant literature and highlights pertinent knowledge and implementation gaps. Section 3 discusses the technical aspects of World Vision's EWEAS infrastructure. Section 4 critically reflects on EWEAS and probes if and to what extent objectives were reached, what worked well, what didn't, including why or why not. Section 5 offers a synthesis of lessons learned to date and what the research, practice and results of field testing imply for long-term mitigation and resilience building as well as disaster preparedness planning. The section also explores the project's limitations and sketches opportunities for further action, research and possible next steps.

The final section, Section 6 recapitulates key lessons and concludes with a distilled shortlist of key themes to move the project forward: (1) fine-tuning organisational processes such that early action becomes a core regular management function; (2) investing in ongoing research and development and technological solutions that

enable a more accessible web-based EWEAS user interface; (3) promoting meaningful communication and training on EW information to ensure key internal stakeholders are accessing relevant decision-making information; and (4) enhancing external collaboration through the development of a common EW platform.

2. Introduction and Methodology

A systemic problem with massive human costs

During the period from April 2010 to July 2012 the Horn of Africa (HoA) was afflicted by a severe drought and accompanying food crisis which caused untold suffering for millions of people in Somalia, Ethiopia, Kenya and Djibouti.[3] With '12.4 million people ... severely affected ... and in urgent need of humanitarian aid'[4] and death toll estimates ranging from 50,000 to 273,000 people,[5] agencies rated the emergency 'the most severe food crisis in the world today'[6] and 'the most severe crisis of its kind in 100 years.'[7] As always in humanitarian disasters, children under the age of five were among the most vulnerable groups, accounting for 50 per cent of all casualties.[8] According to the Kenya Meteorological Department and other agencies, prolonged rainfall failure is ultimately to blame for generating 'the worst drought in 60 years.'[9]

Although 'existing Early Warning Systems (EWS) raised red flags as early as August 2010,'[10] 'most of the international community – INGOs, governments, and the United Nations (UN) alike – fumbled the transition from Early Warning to Early Action.'[11] There is widespread agreement among concerned agencies, including the UN, Save the Children, Oxfam, World Vision and Doctors Without Borders/Médecins Sans Frontières (MSF) that delayed humanitarian response is chiefly to blame for the high human, social and economic cost of the drought.[12] According to one prominent report, 'the deaths of tens of thousands of people during the drought in east Africa could have been avoided if the international community, donor governments and humanitarian agencies had responded earlier and more swiftly to clear warning signs that a disaster was in the making.'[13]

Humanitarian agencies overwhelmingly agree that the HoA food crisis was 'entirely predictable'.[14] This has led some to conclude that it was ultimately 'preventable.'[15] In short, the 'avoidable disaster'[16] was enabled by the 'collective failure [of] a broken humanitarian system based on responding, not preventing.'[17] Fixing this system will involve improving the sector's collective ability to respond more appropriately and timely to major disasters and to focus on enhancing community resilience through long-term development interventions.[18]

With progressive climate change implicated in shifting global precipitation trends, drought cycles are shortening and becoming more severe, thereby increasing the exposure of communities to potential disaster.[19] Already there seems to be 'a general drying trend in Sahelian ... Africa',[20] and evidence indicates that droughts have affected the HoA, 'particularly since the end of the 1960s.'[21] Moreover, the UN flagged that the HoA food crisis occurred in the context of 'climate change and associated global warming set to intensify the severity, duration and frequency of droughts.'[22] Given that arid areas 'will be the first to suffer drought impacts when deficiencies in rainfall occur',[23] it seems apparent that 'translating early warning into early action'[24] represents both an important preparedness priority and a formidable and enduring challenge.[25] Notwithstanding, the cause of the aforementioned drought needs to be clearly differentiated from the cause of the resulting food crisis: 'while the drought may well have been caused by climatic conditions ... the ensuing food crisis resulted from the failure of multiple systems at a national and international level.'[26] In short, the development of 'an effective EWEAS is critical.'[27]

This paper's methodological analysis is derived from a desk-based review of 35 primarily internal reports, briefing documents and presentations stored in World Vision's central EWEAS repository.[28] Moreover, this technical EWEAS review is also informed by expert interviews with members of the EWEAS Working Group,[29] a wider literature review (Section 2), various iterations of World Vision's Early Warning Buster (Sections 3 and 4), as well as 'logically inductive extrapolations'[30] rendered possible by this 'researcher's knowledge of the research situation.'[31] Research and interviews for this paper were performed by this author during the period from 29 July 2013 to 11 January 2014.

Having introduced the problem situation and methodological and analytical approach, the next section reviews relevant literature and highlights pertinent knowledge and implementation gaps.

3. Literature Review

Early action is a sector-wide challenge

As made clear in Section 1, 'there is consensus that the humanitarian response to the famine was mostly late and insufficient.'[32] This widely shared sentiment raises a number of important questions: 'Why did [concerned agencies] miss the opportunity to an early effective response?'[33] 'Why was the international system so slow in responding to accurate early warnings?'[34] and 'Why given the cyclical nature of

drought and food insecurity in the Horn of Africa, had governments and development agencies alike not addressed the root causes of vulnerability and food insecurity as part of normal development practice?'[35]

A review of the literature reveals that early action was effectively stymied by a myriad of obstacles: 'massive security problems';[36] 'extremist militants from the Shabab';[37] 'EW information overload';[38] 'information ... over-centralisation';[39] 'inability to react to the crisis triggers';[40] 'lack of coordination ... among NGOs';[41] and 'drought fatigue'[42] and resultant 'resignation to ... chronic malnutrition.'[43]

While these and other situational handicaps played an important role in thwarting or delaying early action, this literature review particularly highlights three *systemic* barriers to a more effective 'transformation of warning *into* action.'[44] Early on the project team (see Section 3) decided to focus on these three barriers because they were seen to be the ones that the organisation was in the best position to address internally.[45] Understanding these three systemic challenges seems essential for the technical EWEAS review undertaken by this paper.

First, an ingrained 'culture of risk avoidance'[46] among humanitarian stakeholders implied that early action was delayed for 'fear of getting it wrong.'[47] With aid agencies already 'open to criticism of crying wolf, it is easier for an organisation to prove it has dealt with an emergency rather than averted one.'[48] This caution is significantly enhanced by the need to work with projections rather than hard data about an event that has already happened.[49] Relatedly, 'scarcity of funds creates an environment in which waste avoidance becomes a priority.'[50] In this context donor agencies typically perceive 'considerable downside risk in releasing funds in response to uncertain early warnings, particularly in the event that no crisis materialises and they are seen to have wasted public resources. They do not see comparable downside risk in waiting for certainty and responding only when a crisis has taken hold, by which point early action is by definition impossible.'[51] This disposition ingrained in the sector implies that 'donors don't want to fund early and end up funding a non-disaster.'[52] In short, early action '*requires acting on uncertainty*. However, with financial and reputational concerns at stake, there is a powerful incentive to delay humanitarian intervention until it is too late.'[53] This overall situation reinforces 'institutional inertia'[54] and further perpetuates the reactive *modus operandi* of the global humanitarian industry 'based on responding, not preventing.'[55]

Second, early action was inhibited by 'fear of being too interventionist – undermining communities' own capacities to cope.'[56] This 'fear of aid dependence'[57] is amply reflected in the literature, most notably in the context of the 'humanitarian / development divide.'[58] According to a study on the economics of early response and disaster resilience conducted in Kenya and Ethiopia, 'the separation of relief

and development is both artificial and unhelpful. Not only are the recipients the same, but also the underlying causes that create the need are the same – the vulnerability of dryland communities. But what often takes place, are emergency interventions that undermine development ... and long term programming and investments that do not pay sufficient attention to the inevitability of drought.'[59] In short, there is widespread agreement that 'current delivery frameworks, split between humanitarian and development programming, represent a significant barrier to early action.'[60] While it is arguably 'more visible to fund a disaster, where results can be clearly demonstrated, as compared with funding resilience, where the result is that the disaster did not happen,'[61] there is widespread agreement in recently published literature that a 'new paradigm is needed that moves us away from debates about humanitarian versus development and focuses on building resilience and reducing risk.'[62]

Third, media coverage or media absence heavily constrains raising funds for early action. 'Humanitarian agencies are often unable to raise the funds necessary for large-scale interventions until the media draws attention to the disaster. However, in the case of slow onset disasters like drought, media coverage prefers to follow what has happened (with pictures) rather than what might happen. Therefore, "leading" the media to cover slow onsets earlier is a key challenge – we have to sell the *potential* effects, rather than what has already happened.'[63] Hence, it is extremely difficult to raise funds 'in the early stages of a crisis ... before it becomes a full-blown emergency.'[64] Moreover, concomitant 'high profile events (such as the Japan tsunami) also impede drought fundraising'[65] as in practice disaster responses are 'in competition.'[66] In short, 'drought responses are chronically underfunded; the 2011 [HoA drought response] ... received roughly 20 per cent of the requested funding. This problem has ties with both media coverage and the challenges associated with public mobilisation for slow onsets.'[67] Coincidentally, aid agencies are 'dependent on media coverage in order to launch appeals'[68] which also makes them vulnerable to allegations that they could be 'inflating the problem.'[69] Notwithstanding, while media coverage and related funding constraints present definitive challenges, their impact may be mitigated by 'fixing the system in the first place, that is, invest in long-term resilience building.'[70]

In summary, the sectoral state of affairs outlined above appears not to be conducive to early action. The broader humanitarian community needs to 'accept one of the Horn's key lessons: *a traditional response-oriented operational philosophy is simply not appropriate to mitigating the effects of slow-onset disasters*.'[71] At the same time, the literature clearly suggests that the economic and humanitarian case for investment in both preparedness and long-term vulnerability reduction through addressing the drivers of risk is too compelling to discount, discredit or dismiss.[72]

Predicated on bridging the three aforementioned systemic early action gaps, World Vision's EWEAS project represents an intentional organisational adjustment which seeks to instigate 'serious early action oriented reform.'[73] Technical aspects of this infrastructure are discussed next.

4. EWEAS Project

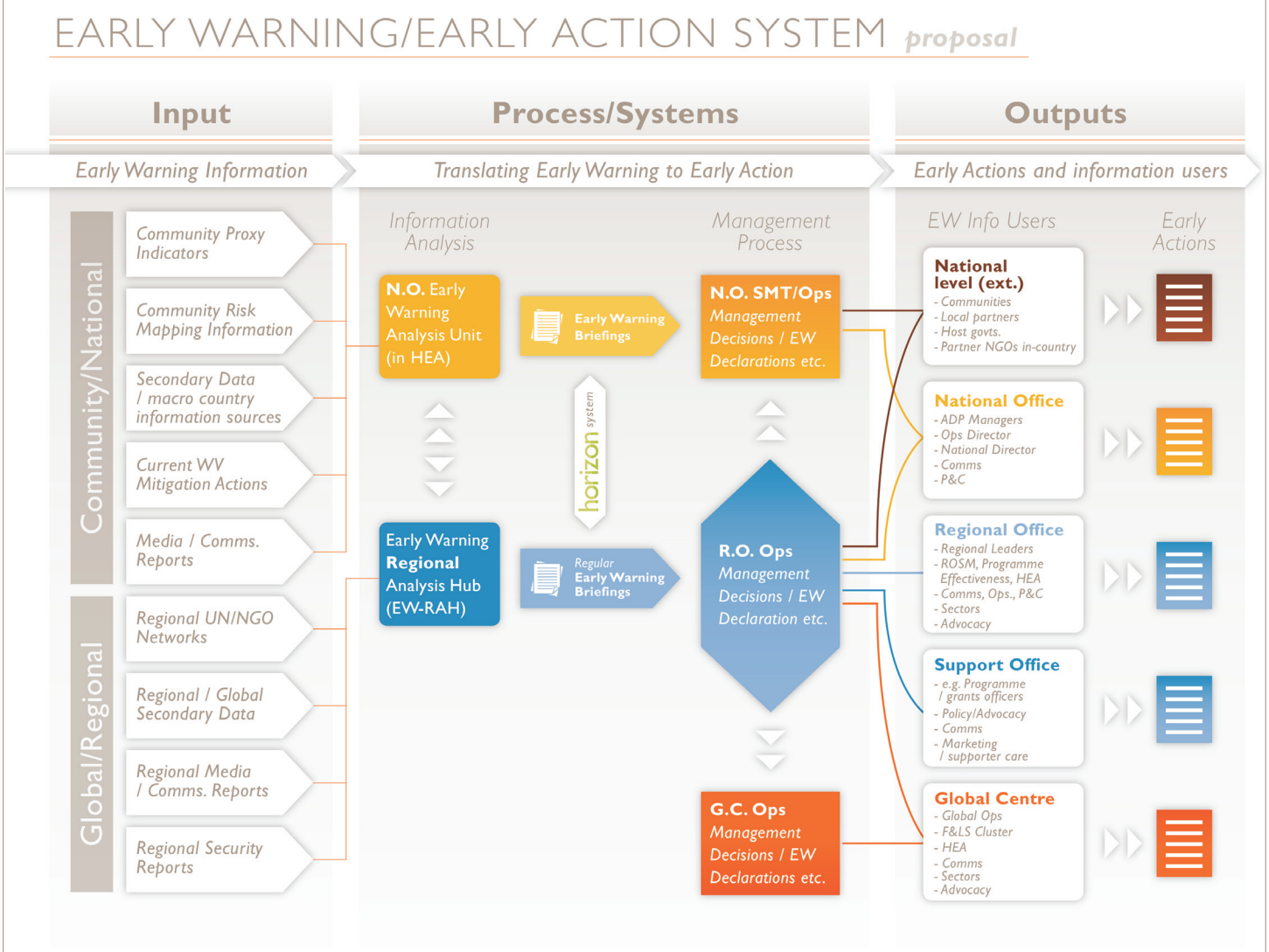
Improving the ability to act early and more appropriately

As made clear in Sections 1 and 2, EWEAS is a strategic attempt to reorient a largely response-oriented organisation and industry to become more anticipatory and forward facing. Expressed in simple language, EWEAS seeks to promote insight and foresight from the experience of hindsight gained from the aforementioned HoA drought. 'Mitigating the next drought in the Horn should be a key operational goal.'[74] To this end EWEAS is conceived as a 'systems approach, with regional, support and global offices working together in support of national offices to take action to prevent or protect against predictable or slow onset emergencies.'[75] 'Having a chain of national offices, regional offices, support offices and global offices in the system is critical'[76] because 'the right information has to be gathered systematically and analysed, and then fed into appropriate decision-making structures at local, national, regional and global levels.'[77]

In developing the EWEAS blueprint, a design team has drawn on the knowledge and insights of a multi-stakeholder working group comprising 'representatives of the Office of Strategy Management, Global Knowledge Management, Support Offices, Regional Offices, Humanitarian and Emergency Affairs, Health, Livelihoods, Disaster Risk Reduction, Peace Building, National Offices, Global Programme Effectiveness Team and others.'[78] Moreover, EWEAS is also informed by an Ethiopia field case study,[79] 'a lot of different early warning [initiatives] in World Vision over the years',[80] as well as 'a survey of both primary and secondary data sources and consultation with over 30 subject matter experts ... and robust engagement with partner INGOs.'[81]

Although EWEAS is intended to 'eventually expand to include all [World Vision] regions',[82] 'a strategically phased roll out will initially target the priority East Africa and Southern Africa regions.'[83] Predicated on the premise that 'programmatic improvement ... can only come from real-world testing',[84] the project is presently being field tested in Ethiopia, Kenya, Uganda, Somalia (East Africa Region),[85] Angola, DR Congo, Lesotho, Malawi, Mozambique, South Africa, Swaziland, Zambia and Zimbabwe (Southern Africa Region).[86]

Figure 1: Medium level risk scenario
In this illustration the three components of EWEAS (1. early warning data; 2. translating EW to EA; and 3. early action and stakeholders) are shown in the context of a medium level risk scenario requiring early action at local, regional and support office levels.



'The EWEA system aims to provide managers at various levels of the organisation with the best assessment of likely future risk scenarios and to provide them with relevant and timely management recommendations for early action. In order to do this World Vision needs good consistent data analysis and systems that translate data into usable management information.' (Richard Rumsey, World Vision Director Disaster Risk Reduction & Community Resilience) [88]

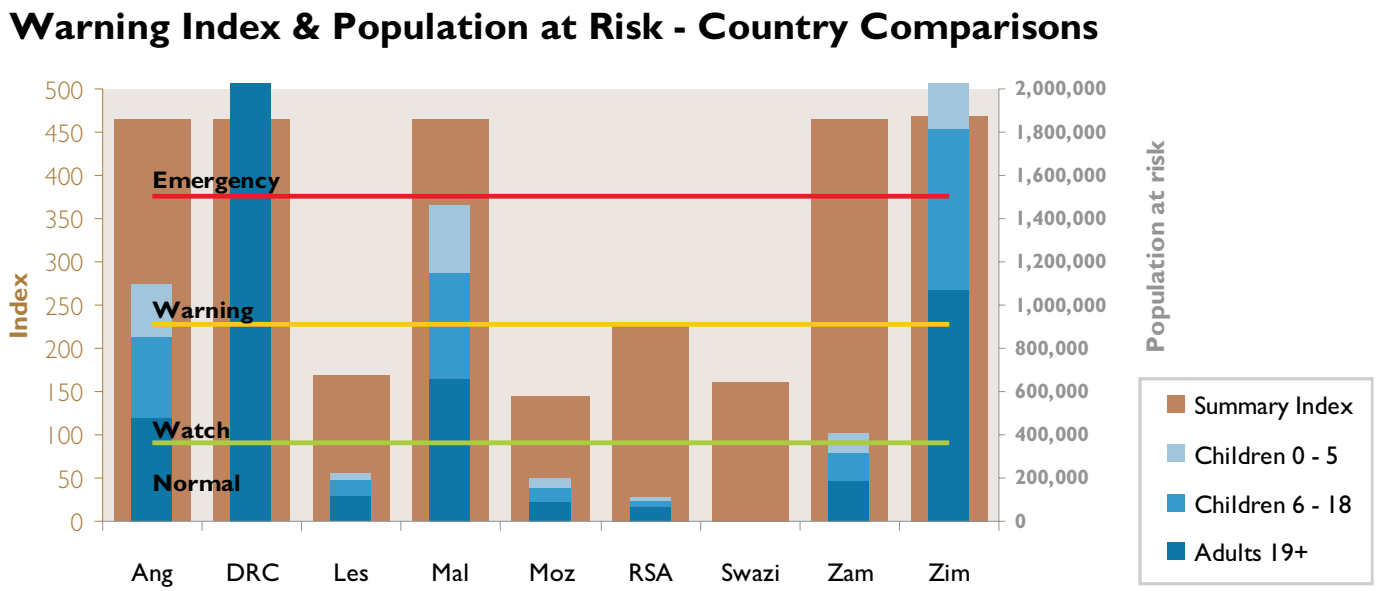
At its simplest EWEAS comprises three core components (Figure 1): (1) collection and analysis of EW data; (2) translation of EW information into EA through information management and clearly defined decision-making rights, systems and procedures at each level; and (3) recommendation of EAs for a range of stakeholders across the organisation.[87]

This section now discusses EWEAS, first by giving an overview of the system, and second by taking a closer look at the algorithm-based data information and analysis mechanism.

In conceptually designing the system developers faced a number of known challenges: 'The main issue with previous [early warning] systems is that they focus solely on information collation. ... This has been proven to not actually bring about early action.'[88] Moreover, recognising that 'the HoA crisis did not suffer from a lack of information but ... lack of action and institutional barriers',[89] the EWEAS design team felt it necessary to 'actually turn the system on its head and start with early action and work backwards to the information analysis requirements.'[90] Hence, 'the initial concept was not to start with the information analysis process but to deal with the constraints to early action and shape the system around user requirements and management information needs rather than information analysis.'[91] One disaster-management professional elaborated: 'We need business intelligence that is tailored to decision-makers and to implementers. Rather than keeping all informed, we [need] to focus on decision-makers and implementers at field, regional and support office levels, and develop systems to suit their needs.'[92] By approaching the system 'from a management point of view, [identifying] who the managers are, ... what types of decisions [they] ... need to make to take early action, ... and what they need in terms of information',[93] developers sought to build EWEAS on the premise "what's going to work ... as opposed to what's conceptually brilliant."'[94]

Hence, the centrepiece of EWEAS is not primarily the data information and analysis (input) itself but the effective and reliable triggering of appropriate early actions taken by previously identified stakeholders (output). Figure 1 depicts both the key stakeholders and a draft menu of early actions that would be required in a medium-level-risk scenario requiring early action at local, regional and support office levels. The illustration also encapsulates 'one of the challenges all ... multi-layered organisations have: how to trigger actions at the *right* parts of the organisation at the *right* time in order to not just change practice in the field or in terms of mitigatory or preparatory action but also to raise the flag in support offices that they need to shift their funding strategy [in anticipation of a building] crisis.'[95]

Figure 2: Comparison of different countries and regional overview
Excerpted from October 2013, Southern Africa Region (SAR) EWEA Report



Population at risk or affected by age group	Angola	DRC	Lesotho	Malawi	Mozam.	RSA	Swazil.	Zambia	Zimb.	SAR Totals	Population at Risk
Adults 19+	479,688	2,925,312	117,387	658,458	90,673	68,561		182,147	1,075,806	Adults 19+	5,598,031
Children 6-18	369,281	2,120,832	72,107	491,446	64,430	26,978		139,281	738,769	Children 6-18	4,023,124
Children 0-5	251,031	1,353,856	33,561	312,036	41,270	14,004		88,572	1,075,806	Children 0-5	3,170,136
Summary Index	464	465	168	465	145	229	161	465	469		

Declaration status									
Cat 1						yes			
Cat 2									
Cat 3	yes	yes		yes				yes	yes

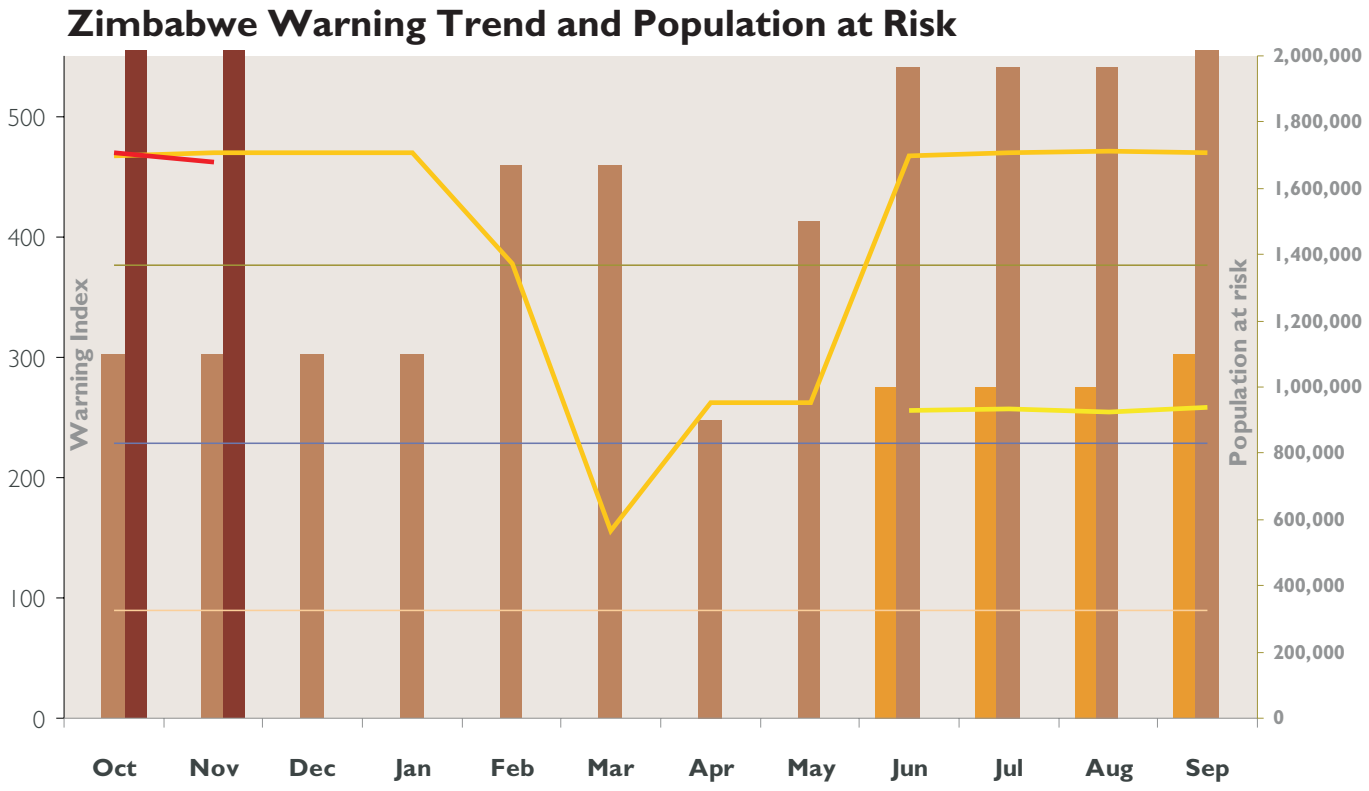
'The uniqueness of the EW/EA "Buster" tool is its ability to suggest possible courses of action and recommended packages.' (World Vision Uganda technical guidance document prepared by WVU QA) [96]

Having provided an overview of EWEAS, this section now takes a look at the system's data collection and analysis mechanism, an algorithm-based Early Warning Buster (EWB) which essentially constitutes 'innovative software to assist with Early Warning & Early Action.'[97] 'What makes the Excel-based buster so innovative is the way in which it brings together the indicators, filtered by hazards, to develop an index and recommend early actions.'[98] More specifically, the EWB comprises a four-step data input, analysis and output process which ultimately yields an early warning and early action report (EWEAR) comprising 'a hazards list [and] semi-intelligent list of actions to take and decisions to make.'[99] This four-step process is detailed next.

'Step one is to complete the dashboard – a systematic checklist of indicators.'[100] In developing the tool a design team 'tried to trawl through as much literature and experience as possible and come up with a list of indicators that are commonly used to define a developing emergency, and then for each indicator, tried to come up with a set of triggers – yes/no answers – which escalate from "normal", "watch", "warning" to "emergency". And those can either be triggers to secondary data sources or they may be directly derived from field level observation. National Offices may also communicate with their ADPs[101] to triangulate whether the remote sensing information corroborates the field level observations. There are about 80 indicators and 180 triggers built into the EWB.'[102] Completing the dashboard and clicking 'yes' regarding those triggers that best describe the situation against the relevant indicators, and categorising them 'as either "process" or "outcome" or "emergency" indicators will automate those answers into an index.'[103] 'The idea behind the index is that it combines triggers into one value, giving an overall indication of the severity of the situation.'[104] In short, the dashboard of step one 'is the heart of the tool, [and] the colour coding [green, yellow, orange, red] relates to the level of risk.'[105] At its simplest, 'by simultaneously monitoring multiple indicators, the system can provide decision makers with a running snapshot of conditions on the ground.'[106] 'This snapshot is comparable across countries and can build up a regional picture of populations at risk'[107] (see Figure 2).

Completing the monthly trend table as part of step two places the calculated warning index and population at risk data into the relevant month being reported against. 'Over time, series of monthly "snapshots" are stored in the system, creating an historic record and helping to facilitate spotting trends. This is part of enabling the tool to also provide a forecast of the likely deterioration of any situation over the coming months, and to provide managers with a range of early actions to mitigate or prepare for a pending crisis.'[108] (Figure 3 shows a single country report sample for the nation of Zimbabwe.)

Figure 3: Single country report for Zimbabwe, indicating warning trend and population at risk
Excerpted from October 2013, Southern Africa Region (SAR) EWEA Report



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Step three presents programming design choices which yield 'a pre-selected list of programming sectors, sub-sectors, outcomes and activities that relate to the hazards which have been automatically identified as a result of the triggers ... selected.'[109] Step three also generates recommended programming types, including suggestions relating to disaster risk reduction, preparedness, response and/or recovery.[110] By 'applying algorithms behind those actions [the EWB is] dramatically cutting down the list of actions and saying: "you might like to think about these."'[111] 'This helps field decision makers to quickly access a list of recommended early actions contextualised for the hazard, population and phase of the disaster. Early action is not enough – early *appropriate* actions are required.'[112]

After pertinent management actions have been identified and selected, step four 'summarises everything in an Early Warning & Early Action Report [EWEAR] ... which can be presented to the senior leadership team as a way forward.'[113] 'This data is then summarised into a regional report and sent out to regional decision makers, expert groups, and each country in the region, giving different stakeholders insights into broader trends impacting the region. The index is also sent out to support [funding] offices, as well as global advocacy and emergency functions within World Vision.'[114]

Having discussed key conceptual, technical and operational features of EWEAS, the next section offers an evaluative snapshot after 18 months of field testing.

5. Discussing the Performance of EWEAS
The challenges of translating information into action

Highlighting selected advantages, disadvantages, benefits, challenges and opportunities, this section seeks to reflect critically on the performance and potential of EWEAS. Moreover, this section aims to be intentionally interpretive as it explores internal organisational procedures and how they constrain or enable early warning and early action processes and outcomes.

A number of advantages of an algorithm- or index-based system seem to be quite clear already. As with other composite indexes popularly used by the humanitarian and development community – for example, UNDP's Human Development Index (HDI), Human Poverty Index (HPI), Gender Inequality Index (GII) – working with single-value indexes can provide a swift 'overall indication of the severity of the situation [see Figure 2 above]. This is a rough yet convenient way of making sense of complexity to enable one to get a rapid overview of the situation.'[115] Ad-

ditionally, operating with indexes 'allows comparisons between countries and over time.'[116] Moreover, 'yes/no answers that can be referenced ... remove the need for complex narrative [and] the need for somebody to make difficult subjective decisions about what information should be communicated.'[117] It is also clear that a system that can transcend language-proficiency barriers has distinct advantages over 'wordy based approaches.'[118] Plotting and tracking graphic warning index and population at risk data trend lines can furthermore be more intuitive and 'simple to interpret'[119] while simultaneously ensuring that 'early onset indicators ... upon which the situation develops' are not subsequently 'forgotten.'[120] Stated differently, 'the creation of a consistently measured data set over a long period provides a very useful picture of seasonal trends and how they relate to "unusual" changes in those patterns of normal seasonal vulnerability.'[121]

In the view of the principal EWB developer, simplicity, conciseness and objectivity are seen as key requisites for appropriate and effective early action: 'Presently all early warning systems rely on a largely subjective approach to interpreting data. ... Adding a level of objectivity to the decision making process is a big step forward.'[122] In a personal interview with this author the software developer elaborated this point:

> 'Basically, we are getting too many manuals of 100 pages. These manuals are too long and too detailed for anybody to practically use, so people end up doing exactly what they want to do. ... But the beautiful thing [about the EWB] is that the statement of "watch", "warning" or "emergency" is based *objectively* on triggering ... indicators, so you know exactly from where that opinion is arising. [Alternative early warning mechanisms can be] quite subjective, [making it] very difficult, if not impossible, to reconstruct how warning alert levels and early action decisions were initially reached. So the index is a formula, an algorithm, that backs the early warning and declaration dashboard.'[123]

Another benefit of EWEAS lies in the fact that the habit of 'regular monitoring brings about a culture of early action with practitioners at the field level.'[124] And, 'by consolidating the data into an index this in effect becomes a primary data source.'[125]

Evidently, the caveat is that high-quality data analysis can occur only on the back of high-quality data inputs. Therefore, data quality assurance appears to emerge as an obvious challenge for a system which is, at least partially, reliant on 'crowd sourcing of data.'[126] 'Once you start having an early warning system that is backed on algorithms and you put in questionable data on your initial input side, you end up with questionable data on the outside.'[127] As a consequence, challenges may emerge when field-level operatives who are 'supposed to add notes as to where the numbers of people stated as being affected are coming from don't bother to put in

where the population at risk is being found, in which case an emitted index number is rather useless. We need to associate the number with a place.'[128]

Composite indexes such as the HDI, HPI or GII are also open to a number of general criticisms which also apply to EWB-generated index figures. According to the literature, 'decisions on what to include and how to assign weights are arbitrary.'[129] Moreover, composite country averages may 'conceal vast differences between men and women, boys and girls, rich and poor, urban and rural, and different ethnic or religious groups.'[130] In other words, composite country indexes are typically not fine-grained enough to consider individual populations and communities and may therefore mask significant intra-country disparities. For example, considered as a single country, Australia has made significant improvements in its HDI score, from 0.857 (1980) to 0.938 (2012). This places Australia second among all 187 countries considered in 2012.[131] However, researchers[132] have shown a 'widening gap in HDI scores'[133] between indigenous and non-indigenous Australians. 'As life expectancy for non-Aboriginal Australians rose, the gap to Aboriginal people increased from 20.6 years to 23.2 years.'[134] Academics have noted that if the same HDI indicators were applied to Indigenous Australians, the HDI score 'would give the population a rank of 103, analogous to a medium human development country.'[135] Hence, indexes based on composite measures of indicators which emit single-country averages are neither nuanced nor context specific enough to highlight localised vulnerabilities.

Moreover, just as in measuring 'development' the 'HDI does not include any measure of what ... are basic needs (such as leisure, security, justice, freedom, and human rights)',[136] the EWB will invariably fail to encapsulate all indicators which, taken together, can highlight 'vulnerability'[137] – itself a function of gender, health, education, religion, location, sexual orientation, social status and related power differentials. Inversely, there is also the risk of 'too many indicators',[138] which may 'produce too perplexing a picture.'[139] This possibility was recognised by the UNDP in the first Human Development Report which used the HDI: 'Having too many indicators in the index would blur its focus and make it difficult to interpret and use.'[140] Other researchers disagree, suggesting that the HDI is 'quite incomplete'[141] and that 'the indicators chosen are too few to comprehend human development.'[142] In short, the question of which indicators and how many indicators to combine within the EWB will ultimately remain a matter of subjective expert judgement, experimentation, commitment to ongoing research, and experience gained over time.

Finally, there appear to be some challenges relating to the ultimate utilitarian value of the early warning and early action reports: 'As with many other EWEA systems, the emphasis inevitably is placed on the information gathering and analy-

sis process and not so much on the utilisation of that information for early action. World Vision faces this same challenge despite putting emphasis on utilisation and early action throughout the process.'[143] Moreover, '[i]nterpretation of data in terms of its predictive nature remains a challenge. ... We can see roughly what the data tells us about today and tomorrow, but the challenge is to synthesise data in such a way that it can provide a predictive analysis of likely future scenarios (six months henceforth), and then recommend appropriate early actions that should be taken now.'[144] A final hurdle to overcome is what appears to be a certain 'disconnect between national offices, regional offices and support offices.'[145]

Whilst the aforementioned challenges are evident and real, EWEAS nevertheless remains an innovative and promising project for long-term resilience building and enhanced mitigatory and anticipatory action. The following section seeks to synthesise key lessons learned and opportunities for further action, research and possible next steps.

6. Synthesis
Stimulating early appropriate action

As discussed in Sections 3 and 4, World Vision's EWEAS indicates an organisation-wide repositioning to overcome barriers to early action. '*Early action requires acting on uncertainty*. Absolute certainty is a luxury accompanied by a terrible human cost.'[146] Hence, the critical challenge that frames the whole EWEAS design is the question 'how do we enable decision makers to take early actions at multiple levels of the organisation to mitigate the impact of potential crises before there is any significant evidence of human suffering?'[147]

To recapitulate, at its core EWEAS comprises three elements: (1) EW data collection and analysis; (2) translation of EW information into EA through information management and clearly defined decision-making rights, systems and procedures at each level; and (3) recommended EAs for a range of stakeholders across the organisation.[148] Taken together the system constitutes a 'semi-autonomous analysis of early warning data [which] suggests concrete early action to decision makers.'[149] Avoiding 'paralysis of analysis',[150] 'data dumping',[151] and 'wordy-based approaches',[152] the system is being developed to 'manage the risks, not the crisis.'[153] In practical terms, 'crowd sourcing of data with strong representation from secondary sources, and where possible triangulated by primary field level observation ... creates a kind of meta-analysis. By consolidating the data into an index this in effect becomes a primary data source.'[154]

'Safeguarding development gains'[155] is one of the system's core objectives: 'Given [World Vision's] multimillion dollar commitment to ongoing development work in the Horn of Africa'[156] implies strong self-interest to 'insure this investment against future disasters',[157] principally by 'acting on information from early warning systems and not waiting for certainty before responding, as well as tackling the root causes of vulnerability and actively seeking to reduce risk in all activities.'[158] The implicit challenge is as well-known as it is ambitious: 'Integrating disaster management features into existing long-term development programmes so that changing contexts are predicted and catered for rather than seeing crises as events to be dealt with outside of broader development strategies.'[159]

Seeing that composite indexes such as the HDI have taken more than 20 years to gradually evolve, weathering off fierce early criticisms,[160] at this stage it would seem unrealistic to expect the EWB to be anything more than a promising initiative which after 18 months of field testing has 'set a baseline and hypothesis which can be tested in the long run.'[161] In time it will be 'judged by its effectiveness in stimulating appropriate decision making and early action.'[162]

In synthesis, the ultimate objective would seem to be less about achieving a perfect index and more about ensuring that timely and appropriate decisions are made from early warning data that is consistently collected, analysed and utilised across country contexts. 'In a huge multi-country, multi-layered and multi-ministry organisation like World Vision, the constant need to overcome institutional barriers to early action appears to be paramount.'[163] Finally and relatedly, EWEAS seems preconditioned on senior leadership and field-based operatives becoming 'intimately acquainted with it.'[164]

The final section recapitulates key lessons and concludes with a highly distilled shortlist of recommendations for different stakeholders.

7. Conclusions

Main findings and shortlist of recommendations

As shown, 18 months of EWEAS field testing have highlighted challenges and opportunities. Four areas seem to be particularly worthy of emphasis: (1) fine-tuning organisational processes such that early action becomes a core regular management function; (2) investing in ongoing research and development and technological solutions that enable a more accessible web-based EWEA user interface; (3) promoting meaningful communication and training on EW information to ensure

key internal stakeholders are accessing relevant decision-making information; and (4) enhancing external collaboration through the development of a common EW platform.

First, it seems necessary that the review of EW information becomes central to operational management procedures. This will require fine-tuning to guide the ongoing development of EWEAS through a process of evaluation, adjustment and organisational learning. While it may be true that EWB-suggested EA recommendations are more 'objective' vis-à-vis other EW/EA systems,[165] it seems beyond doubt that EWEAS needs to be fine-tuned through 'interpretive' expert analysis and 'subjective' value judgments – 'people sitting down on a monthly basis, analysing the data [and] interpreting what it says about the future.'[166]

Second, it seems clear that an 18-month period of field testing is an insufficient time horizon to arrive at conclusive results regarding the system's performance and potential. Seeing that the HDI has taken more than 20 years to evolve within the development community through a process of continuous fine-tuning, it seems reasonable to suggest that calibrating the EWB will require more time, testing, funding, research and development. Ultimately, EWEAS seems poised to perform best in terms of user requirements if developers can shift the data analysis 'from a spread sheet into a widely accessible web-based database mechanism.'[167] Mobile phone app technology such as the 'Droid Survey Mobile App Concept'[168] may offer additional advantages, including enhanced crowd-sourced input options that integrate GPS tagged data and GIS-based mapping and analysis.

Third, effectively communicating EWEAS to relevant internal stakeholders will be critical if World Vision is to leverage its position as an 'industry leader in early response'[169] and as a 'leader on Early Warning/Early Action.'[170] According to the EWEAS draft concept, 'a single ICT [information and communications technology] platform is needed to [mainstream communication]; it would allow stakeholders spread across multiple zones in a country … to access a common picture easily and effectively.'[171] This appears crucial in light of a draft progress report warning that 'with subject matter experts scattered around the globe, it is far too easy for pockets of knowledge to remain isolated.'[172] Finally, purposive 'user training'[173] in quality data inputs seems indispensable lest EWEAS 'fall prey to the "garbage in, garbage out" truism.'[174]

Fourth, recognising that World Vision is part of a wider humanitarian system focused on reducing disaster vulnerability, for communities, the benefits of an effective EWEAS are maximised when collaborative approaches are enabled between colleague organisations in support of states' responsibilities to protect their populations. Collaborations need to be embraced horizontally as well as vertically. Hori-

zontally, there are community benefits when humanitarian organisations can align around joint contextual analyses of evolving situations as well as in the predictions of anticipated future scenarios. Additionally, if there is agreement on collective early actions among concerned agencies, this can strengthen the broader ecosystems within which communities exist. Vertically, humanitarian actors need to ensure they are supporting state-led initiatives at national and regional levels. This can be done only through collaboration. 'World Vision is currently leading a six-INGO EWEA group that aims to develop these horizontal linkages and dock into pre-existing vertical ones to improve external collaborative approaches to EWEAS.'[175] ■

Notes

Executive Summary

1 (Tafere 2013, pers. comm.)

2 (Rumsey 2013a, pers. comm.)

Section 1: Introduction, Methodology

3 (UN-OCHA 2011, Checchi and Robinson 2013)

4 (UN-OCHA 2011, pp. 1,6; cf IRIN 2011/2011a)

5 (Checchi and Robinson 2013, p. 8; ARB 2012, AP 2013; Hillier and Dempsey 2012, p. 3)

6 (UN-OCHA 2011, p. 6)

7 (WVI 2012a, p. 1)

8 (AP 2013, Tisdall 2012; Checchi and Robinson 2013, p. 8)

9 (BBC 2011; IRIN 2011, UN-OCHA 2011, p. 17)

10 (WVI 2012, p.1; cf Venton et al 2012, p. 13)

11 (WVI 2012a, p. 1; emphasis original)

12 (Hillier and Dempsey 2012; WVI 2012, 2012a; MSF 2011, UN 2011, Checchi and Robinson 2013, p. 5)

13 (Tisdall 2012, citing Hillier and Dempsey 2012)

14 (WVI 2012a, p. 1)

15 (Economist, 2011)

16 (Tisdall, 2012)

17 (Dvorak 2011; cf Venton et al 2012, Hillier and Dempsey 2012)

18 (Rumsey 2013, pers. comm.; World Bank 2012, 2013; GIZ 2011; Luetz 2008, 2013)

19 (IPCC 2012; Gubbels 2011, eg pp. 67, 105; Woodke, n.d.; World Bank 2012, 2013)

20 (UN-ISDR 2011, p. 65)

21 (IPCC 2012, p. 253; L'Hôte et al 2002; cf IPCC 2007)

22 (UN-OCHA 2011, p. 17)

23 (UN-ISDR 2011, p. 62)

24 (Chatham House, 2012)

25 (UN-ISDR 2011, pp. 53-69; Foresight 2012; World Bank 2012, 2013; GIZ 2011)

26 (Rumsey 2013a, pers. comm.)

27 (Rumsey 2013, pers. comm.)

28 Dropbox web address on file with this author; 26 files were particularly highlighted for attention.

29 Richard Rumsey, Hugh Greathead, Julian Srodecki, Isabel Gomes, Mesfin Teklu

30 (Sedlack and Stanley 1992, p. 145)

31 According to Sedlack and Stanley (1992, p. 145), '[t]he researcher's expertise – which has been gathered through a lifetime of study – should not be discounted. Such knowledge conscientiously applied can result in highly representative samples from which logically inductive extrapolations to sampling frames can be made.'

Section 2: Literature Review

32 (Checchi and Robinson 2013, p. 5)

33 (Hillier and Dempsey 2012, p. 12)

34 (ibid, pp. 3-4)

35 (Rumsey 2013a, pers. comm.)

36 (ARB 2012, p. 19405)

37 (AP 2013; Chatham House 2012, p. 19)

38 (Srodecki and LeMay 2012, p. 6)

39 (Chatham House 2012, p. 5)

40 (Hillier and Dempsey 2012, p. 14)

41 (Venton et al 2012, p. 82)

42 (WVI 2012, p. 2)

43 (Hillier and Dempsey 2012, p. 14)

44 (Srodecki and LeMay 2012, p. 4; emphasis original)

45 (Rumsey 2013a, pers. comm.)

46 (WVI 2012a, p. 1)

47 (Hillier and Dempsey 2012, p. 14)

48 (Dvorak 2012; cf, IRIN 2011)

49 (Rumsey 2013a, pers. comm.)

50 (Srodecki and LeMay 2012, p. 6)

51 (Chatham House 2012, p. 11; cf, IFRC & RCS 2008, p. 7)

52 (Venton et al 2012, p. 82)

53 (Srodecki and LeMay 2012, p. 6)

54 (Venton et al 2012, p. 81)

55 (Dvorak 2012)

56 (Hillier and Dempsey 2012, p. 14)

57 (WVI 2012a, p. 2)

58 (Chatham House 2012, p. 13)

59 (Venton et al 2012, p. 82; attributed to REGLAP 2011)

60 (Chatham House 2012, p. 13)

61 (Venton et al 2012, p. 82)

62 (Chatham House 2012, p. 22; cf World Bank 2012, 2013; GIZ 2011)

63 (Srodecki and LeMay 2012, pp. 4-5, emphasis original; cf, Brown 2011)

64 (Dvorak 2012)

65 (WVI 2012, p. 2)

66 (Rumsey 2013a, pers. comm.)

67 (Srodecki and LeMay 2012, p. 6)

68 (Chatham House 2012, p. 16)

69 (Dvorak 2012)

70 (Rumsey 2013a, pers. comm.; cf World Bank 2013; Luetz 2008, 2013)

71 (WVI 2012 p. 1; emphasis original)

72 (Rumsey 2013, 2013a, pers. comm; Venton et al 2012; Hillier and Dempsey 2012, p.19; Luetz 2008 pp. 30-35, 2013; UN/WB 2010; PLI 2007; Chadburn et al 2010; Aklilu and Wekesa 2002).

73 (Srodecki and LeMay 2012, p. 7)

Section 3: EWEAS Project

74 (Kelly et al 2012, p. 2)

75 (WVI 2012b, p. 1; Kelly et al 2012, p. 3)

76 (Rumsey 2013a, pers. comm.)

77 (Srodecki and LeMay 2012, p. 19)

78 (Srodecki and LeMay 2012, p. 3)

79 (Teklu et al 2012)

80 (Greathead 2013, pers. comm.)

81 (Srodecki and LeMay 2012, p. 3)

82 (WVI 2012b, p. 2)

83 (Rumsey 2013a, pers. comm.)

84 (WVI 2012b, p. 2)

85 (Tafere 2013, pers. comm.)

86 (Greathead 2013, pers. comm.)

87 (Rumsey 2013, 2013a; pers. comm.)

88 (Rumsey 2013a, pers. comm.)

89 (ibid)

90 (ibid)

91 (ibid)

92 (Gomes 2013, pers. comm.)

93 (Rumsey 2013a, pers. comm.)

94 (ibid)

95 (Rumsey 2013a, pers. comm.; emphasis original)

96 (Verbatim quote and document attribution communicated to this author by Tafere 2013, pers. comm.)

97 (Greathead 2013a, 2013b, 2013c, 2013d; WVI SAR HEA n.d)

98 (Srodecki 2013, pers. comm.)

99 (Greathead 2013c @ 1:25; 9:30-9:50)

100 (Greathead 2013c @ 1:30)

101 Throughout World Vision International community development programmes are uniformly identified as Area Development Programmes (ADPs).

102 (Greathead 2013, pers. comm.)

103 (ibid)

104 (Greathead 2013a, p. 2)

105 (Greathead 2013c @ 2:10, 4:00)

106 (Greathead 2013a, p. 1)

107 (Rumsey 2013, pers. comm.)

108 (ibid)

109 (Greathead 2013c @ 5:15-5:30)

110 (ibid @ 5:50-6:00)

111 (Greathead 2013, pers. comm.)

112 (Rumsey 2013, pers. comm.)

113 (Greathead 2013, pers. comm.)

114 (Srodecki 2013, pers. comm.)

Section 4: Discussing EWEAS

115 (Greathead 2013a, p. 2)

116 (ibid, p.1; cf Morrison 2009, pp. 242-243)

117 (ibid, p.2)

118 (Greathead 2013, pers. comm.)

119 (ibid)

120 (Greathead, 2013a, p.2)

121 (Rumsey 2013, pers. comm.)

122 (Greathead 2013a, p. 1)

123 (Greathead 2013, pers. comm.; emphasis original)

124 (Rumsey 2013, pers. comm.)

125 (Greathead 2013a, p. 1)

126 (ibid)

127 (Greathead 2013, pers. comm.)

128 (ibid)

129 (Morrison 2009, p. 243)

130 (ibid)

131 (UNDP 2013, p. 148)

132 (Cooke et al 2007, p. 9)

133 According to Cooke et al (2007, p. 9), this HDI gap widened 'from 0.160 in 1990 to 0.184 by 2001.'

134 (ibid, p. 5)

135 (Yap and Biddle 2009, p. 1)

136 (Morrison 2009, p. 243)

137 Or inversely, 'resilience'.

138 (Power 2007, p. 163)

139 (ibid)

140 (UNDP 1990, p. 13; cf, Castles 1998)

141 (Dasgupta 1990, p. 1717)

142 (Tilak 1992, p. 37)

143 (Rumsey 2013, pers. comm.)

144 (ibid)

145 (Srodecki 2013, pers. comm.)

Section 5: Synthesis

146 (Srodecki and LeMay 2012, p. 35; emphasis original)

147 (Rumsey 2013a, pers. comm.)

148 (Rumsey 2013, 2013a; pers. comm.)

149 (WVI 2013, p. 5)

150 (Teklu et al 2012, p. 12)

151 (WVI 2012b, p. 2)

152 (Greathead 2013, pers. comm.)

153 (WVI 2012, p. 1)

154 (WVI 2013, p. 5)

155 (WVI 2011, p. 30)

156 (Srodecki and LeMay 2012, p. 11)

157 (ibid)

158 (WVI 2013, p. 6)

159 (Teklu et al 2012a, p. 4; cited by Rumsey 2013, pers. comm.)

160 (Dasgupta 1990, Tilak 1992, Castles 1998)

161 (Greathead 2013, pers. comm.)

162 (Rumsey 2013, pers. comm.)

163 (Rumsey 2013a, pers. comm.)

164 (Greathead 2013, pers. comm.)

Section 6: Conclusions

165 (Greathead 2013, pers. comm.)

166 (Rumsey 2013, pers. comm.)

167 (ibid)

168 (LeMay 2013, p. 4)

169 (Srodecki and LeMay 2012, p. 9; attributed to Hillier and Dempsey 2012, pp. 11, 24)

170 (Srodecki and LeMay 2012, p. 32)

171 (Srodecki and LeMay 2012, p. 24)

172 (LeMay 2013, p. 2)

173 (ibid, p. 5)

174 (ibid)

175 (Rumsey 2013, pers. comm.)

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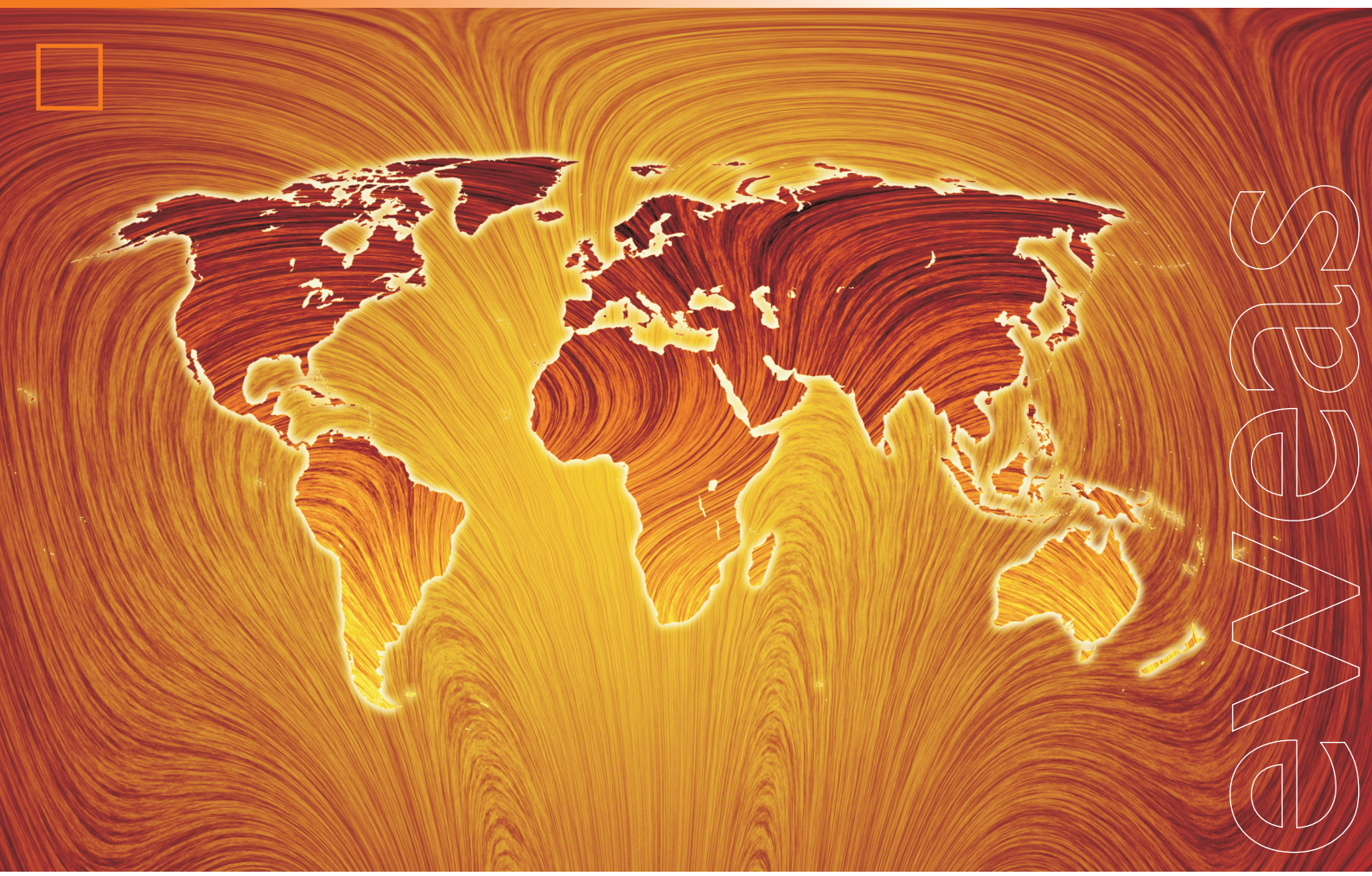

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