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Knowledge network on sustainable household energy
in Southern and Eastern Africa

Scenario Analysis

Health Issues

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Working draft

An initiative of



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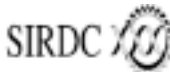
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Health issues

1.0 Focus of paper

The overall aim of this exercise is to explore realistic best and worst case scenarios over a 20 year time period, to see how these are likely to impact on access to household energy across the Sparknet region, and how these compare with continuation of current trends (business as usual). This paper will look at this from a **health** perspective, considering how the conditions for the three scenarios (formerly five, two having been abandoned) are likely to affect the health impacts related to household energy for the rural and urban poor.

2.0 Background

This paper builds on country reports, as well as the policy and information issues discussed particularly in the second health briefing paper, *Household Energy and Health: the global context*. In summary, this covered:

- Global burden of disease from indoor air pollution (IAP), based on the figures published in the 2002 World Health Report
- Links between energy, health and sustainable development, with particular reference to WSSD
- Improving evidence for policy, with discussion about the relationship between levels of IAP and risk, and the need for evidence on the impacts of household energy interventions.
- Strengthening collaborative action, the role of different sectors and in particular that of the health sector.

These concepts, information and policy issues inform the discussion of the scenarios. The actual scenarios are based on the short discussed paper prepared by Grant Ballard-Tremeer.

3.0 General comments relating to the scenarios

The three scenarios are based on differing levels of (a) economic prosperity and (b) regional cooperation. The general impact of these two components will be considered first, and then explored in more detail under the conditions of each of the scenarios (Annex table 1).

3.1 Economic prosperity

Poverty (and alleviation of poverty with increasing prosperity) is likely to be the most important determinant of health as this relates to household energy. There are a number of reasons for this.

- Poverty is strongly related to risk of the major health problems associated with household energy use and IAP, for example acute lower respiratory infections, TB, low birth weight, etc. This in turn is due to increased vulnerability through malnutrition, poor housing, overcrowding, and so on. Issues relating to access to, and uptake of health services, are considered further below.
- Poverty is strongly associated with dependence on fuels at the lower end of the energy ladder, which result in higher levels of IAP. These inefficient energy systems also act as a barrier to escaping from poverty. Declining prosperity typically forces people to

move down the energy ladder, relying on less efficient and more polluting energy sources. Increasing prosperity will allow the poor to move up the energy ladder.

- Levels of economic development have major demographic implications, in particular levels of population growth and migration into urban areas. These are complex issues, with many determinants, but some important issues can be identified. Population growth in a situation of minimal (or worsening) economic development among the rural poor stresses biomass fuel supplies, while at the same time leading to increased vulnerability to ill-health through malnutrition, etc. Related factors such as levels of education and health service provision will tend to compound these problems. In the urban setting, there may be (at the same time as increasing rural poverty) an increase in rural to urban migration, leading to the expansion of slum housing and greater stress on fuels used by the urban poor – typically charcoal, wood to some extent, and also waste materials. Urban migration is a general trend, and likely to grow also with increasing prosperity, but one is likely to see different patterns of migration from the rural areas and greater likelihood of effective urban planning and management.
- Levels of economic development will also impact on the provision and quality of health services, although such provision (and uptake) is also very dependent on other factor such as changes in policy on financing and contributions. Health care (treatment) services will generally have a small impact on the key health issues associated with household energy (as these require robust preventive action, mostly from outside the health sector), but nevertheless health services do have an important role. Examples of treatment include the management of ALRI and TB, the provision of vaccination, and nutrition supplements such as Vitamin A, etc. Health services can also play a part in collaborative efforts to raise awareness of the health impacts of household energy, and this is unlikely to happen if such services are under-resourced and poorly managed. [See also comments on role of health services under section 3.2]

3.2 Regional co-operation

From the discussion papers so far, the most important areas of regional co-operation are described under headings of:

- Regional economic cooperation
- Agreements around energy supply
- Cooperation on household energy and development arising through Sparknet and other initiatives such as the EATDN (which is sub-regional).

The impacts of varying levels of regional cooperation in respect of these three headings are discussed further in the scenarios in Table 1.

3.3 Other aspects of cooperation (regional and at other levels)

Some important areas of policy that (a) address cooperation, and (b) involve health and the health system are:

- Improving information on health impacts of IAP and household energy, both regionally (internationally) and in each country. This should cover what is known about levels of exposure (for which all information on household energy collated by Sparknet is highly relevant, although not sufficient on its own), associated risk, and the impacts of interventions.

- Approaches to how this information is ‘packaged’ and disseminated to various audiences, right across the range from national government level, right down to community, schools, etc.
- Collaborative action at national levels, including the role of Health Ministries in helping to develop and coordinate policy. As discussed in the second health brief (global context), this is important but difficult to establish, and it is reasonable to expect that regional cooperation (assistance, example, etc) could be a powerful local stimulus to this.
- The part played by health services at different levels, in particular in districts and in primary care, needs to be worked out. Again, regional cooperation could be very helpful in helping to define this role, and providing support and training, etc., though examples where health services are playing an active part.

4.0 Other considerations

A number of other issues arose in carrying out this review (and in response to scenario papers from countries), which cut across the individual scenario discussions. Some further discussion of these follows.

4.1 Evidence on health impacts

Data on pollution levels and exposure are important as a ‘first stage’ in assessing health impacts of IAP. There seems to be a fair amount of information on energy use, from which some conclusions can be made about likely exposures and health impacts. Some countries have some data on IAP exposures in poor rural homes (though these data not currently held in country reports, it is usually from ad hoc studies). Health impact studies (international) are underway, though more are required, but none (as far as I am aware) in Sparknet partner countries. Such studies are complex and expensive, although the feasibility (e.g. case-control study when improved stoves/alternative cleaner fuels have achieved moderately substantial uptake) is being looked at. In planning for regional and national information needs, it is necessary to take into account the priority that countries might attach to ‘local’ evidence (local could mean regional).

4.2 Role of health sector

As discussed in the health briefing paper, this is challenging. Based on country reports, in most cases MoHs are involved to some degree. It would be useful to establish this more specifically, including what views of ministries are on this topic, and work up plans for developing their role. Although more relevant to our later policy conference, a first step is to try and achieve consensus on what part health services at different levels can play (this should include prevention, public health as well as treatment services), and what are the most appropriate opportunities (e.g. district service planning and reporting, giving advice when child sick, vaccination visits, etc.). The next step would be implementation, through information and training, and development of various policy instruments which would help ensure this is put into practice.

4.3 HIV/AIDS

Important for countries to consider carefully anticipated impacts of current and expected rates of HIV and AIDS, by social/sex/geographic, etc., groups. An important consideration from the point of view of household energy, is the impact HIV/AIDS has on demands to care for (and feed) sick member of the family who are no longer economically productive.

4.4 Electrification

Electrification is given considerable prominence in the country scenario papers, rightly so as it can play an important part in development. Countries should however analyse carefully the likely contribution electrification will make to improving health by reducing indoor air pollution. This impact is unlikely to be at all significant unless electricity substitutes polluting alternatives as the main fuel for cooking (and space heating, where there is a need for this). For most of the rural populations in the Sparknet group of countries, it seems very unlikely that electricity, even were it available, could be used as the main household fuel – certainly not over the ten year scenario period. That is not to suggest that electrification should not be a goal for rural communities, but it is important to assess carefully the likely impacts on pollution.

The situation for urban communities may well be different, and countries should assess the likely role for electricity for poor households in the main conurbations, over the ten-year period.

One country in the group, South Africa, may be in a different situation as regards the impact of electrification due to the far more extensive electricity infrastructure and overall greater resources of the country.

4.5 Impacts on socio-economic and health differentials (inequity)

It is very important that in the scenario analyses to consider the impact of changes in economic development and regional cooperation on differentials across society in poverty and health. Possible impacts have been discussed in the scenarios in Table 1, but these are non-specific and require elaboration by each country. Some empirical research may be available to draw on in some countries. This issue should be an important consideration for policy when the time comes to discuss that.

5.0 Conclusion

One conclusion from these scenario analyses, is that economic prosperity is a very important driver of health status as this relates to household energy in the population groups with which Sparknet is most concerned. It is recognised that this is a speculative conclusion, although the very close association between fuel and stove type on the one hand, and the other conditions predisposing to poor health, mean that economic prosperity can be expected to be dominant.

This conclusion also depends to a degree on the nature and extent of regional cooperation. Regional cooperation has a potentially important part to play however, possibly ameliorating health impacts to an extent as poverty worsens (but this can be expected to be very patchy), but achieving much more potential in circumstances of increasing prosperity.

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Table 1: Summary of 5 scenarios and impacts from health perspective

Scenario	Economic prosperity	Regional cooperation	Impacts from health perspective
A: Business as usual	Rate of economic growth in countries is low, and poverty widespread (refer to GDP, poverty, literacy, infant mortality, etc., data). The situation in the countries concerned does however vary, with for example Zimbabwe having particular issues to address that have impacted substantially on the economy, while a negative rate of economic growth has been reported in recent years for Kenya.	<p>Current regional cooperation is limited in respect of:</p> <ul style="list-style-type: none"> • Economic and energy cooperation arrangements¹ • Sharing information and best practice <p>There some networks such as EATDN, but countries concerned are best placed to judge how these impact on policy development <u>and</u> implementation</p>	Information on current health situation, with respect to impacts of household energy, is not held in Sparknet country reports. Key data for each country is available from WHO reports and web site, which also gives some information on trends. From this, it is known that ALRI, for example, remains very common among poor rural populations. Extensive information on fuel and stove type use is available from country reports, which given an approximate indication of exposure risk. Biomass use is very extensive in most countries, South Africa having lower dependence and generally higher levels of development and health service provision. Actual exposure data is not included in Sparknet reports, but is available from some studies in some of the countries. Such data relate to very specific populations, but are probably fairly representative of wider populations with similar lifestyles and energy use. Where measured, exposure among these biomass using communities is very high, and similar to (or higher) than levels measured in poor rural households in Asia and the Americas. Access to health services for treatment of conditions such as ALRI is quite restricted for poor rural people in most of these countries (South Africa having best provision). There is currently very limited involvement of the health sector addressing health-related impacts of household energy. HIV/AIDS is an important factor, varying in prevalence across the countries concerned, which increases risk of key diseases (ALRI, TB), contributes to poverty, and increases burdens on households caring for sick family members.

¹ As far as I am aware, but I am not very familiar with economic cooperation arrangements that involve the Sparknet countries and which might be significantly contributing to socio-economic development for the (rural) poor.

Scenario	Economic prosperity	Regional cooperation	Impacts from health perspective
D: Worst economy and worst cooperation	General deterioration of economies is possible (and is reported currently for Kenya), but probably unlikely to be very severe apart from where there is major political upheavals and unrest, and/or climate related events. Poverty in some population groups however, may well deteriorate over the period before improving, for example urban migrants and some areas of rural poverty.	Worsening cooperation, which is likely to affect the various countries in the Sparknet group differently. Any such inherent differences would likely be enhanced due to political and economic pressures.	Increased poverty can be expected to lead to deterioration in health related impacts of household energy for the reasons given in Section 3.1. The economic situation can be expected to be a more powerful determinant of health of the rural (and urban) poor than would various types of regional cooperation, but the failure of cooperative initiatives would likely see the poorest and most excluded groups losing some existing means of support and assistance. Health services would also be less well resourced, in terms of staff, drugs, management, premises, etc.) Overall, wider disparities in health across society can be expected with this scenario.
C: Best economy and best cooperation	It seems unlikely that there will be very strong economic growth over the next 20 years in the countries concerned, although variation can be expected. South Africa may be in a stronger position, while it can reasonably be assumed that Zimbabwe is likely to undergo a period of adjustment. A critical question for scenarios with improved economic prosperity, is how growth might be distributed across the population and the extent to which the rural and urban poor benefit. Countries are best placed to speculate on this in the light of which sectors growth seems most likely to occur, and political approaches that impact on distribution of wealth, education, access to service, etc.	Improving economic circumstances would in general be expected to assist the growth of regional cooperation, and/or help cooperation achieve its potential. There may be circumstances however (for example where economic growth in the countries concerned varies greatly), where cooperation may be difficult. Alternatively, this may be a stimulus to cooperation.	Improved economic prosperity will bring about improvements in health relating to household energy, although the issues relating to distribution of economic benefits considered above need to be taken into account. Economic growth may, over the period concerned, bring about its own problems, for example rapid growth in urban slums if the necessary planning and infrastructure development is not carried out. Benefits to health of economic prosperity will again depend on the distributional and other factors discussed above, and the potential for vulnerable groups to miss out on the benefits needs to be considered. In this scenario, however, the improvement in regional cooperation may have an important additional impact. This may be seen in terms of best practice in community initiatives being more widely implemented, and in conditions of stable government more in the way of planning for the development of rural economies, better urban planning, etc.