Sustainable Rural Water Supplies (SRWS) Flagship

Work Plan
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1.0 Background

1.1 Over the past three decades a progressive effort has been made to make rural water supplies operational over longer periods of time. Many new and effective approaches have been developed to achieve this aim, though in reality the ultimate goal of 100% sustainable rural water supply remains elusive. The handpump, which supplies nearly half of all rural African's protected water supplies, has an estimated functionality rate of approximately 64%[1]. (see Table 1). Data for other types of protected rural water supply are not as readily available, although it might be reasonable to estimate that spring sources would be slightly more sustainable, and motorized pump arrangements would be much less sustainable. Until more reliable estimates appear it will be assumed under this flagship (based upon the handpump data), that only two out of three water points in rural areas on the continent are functional at any given time.

1.2 Several reasons for this unacceptably high failure rate have been identified, including: inappropriate technology; poor construction; lack of community involvement and subsequent sense of ownership; poor community organization or cohesion; lack of follow-up support and/or training; the unavailability or high cost of spare parts, energy, and professional support services; and the drying-up of source water. For many years the failure rate had been attributed to technological reasons alone. It has now become clear that social and institutional factors play equally important roles. The critical question to ask is no longer solely, "Why do water supplies fail?", but "Why do they fail and why haven't communities and/or service providers kept them running?"[2]

1.3 Getting handpumps, for example, to work reliably in rural areas of Africa has proven to be a particularly intractable problem. A long-term study by WEDC on sustainable handpumps in Africa had to recognize that, "The (study) has experienced great difficulty in identifying sustainable handpump projects in Africa."[3] Similarly, a recently developed World Bank scorecard for eleven low-income Sub-Saharan Africa (SSA) countries[4] found that while six of the eleven countries surveyed are rated as having "fully user-friendly handpumps", none had fully sustainable spare parts supplies (nine of these had partially-sustainable spare parts supplies, while two countries were rated as having completely unsustainable supply chains.) While it is recognized that the sustainability of rural water supplies relies on much more than supply chains alone, if we accept the sustainability of spare parts supply as a proxy measure for overall handpump sustainability, the implication is clear – few countries, if any, are successfully addressing the problem of keeping rural water supplies functioning.

[1] Preliminary Desk Study of Potential for Self Supply in Sub-Saharan Africa, Sally Sutton, WaterAid and the Rural Water Supply Network, October 2004, Table 1, p. 7.; and, unpublished data table for 18 SSA countries, J. Narkevic, WSP, April 2007.

[2] It is equally as important to understand why many water supplies *do* work, and why many communities *do* keep them in repair!

[3] Guidelines for Sustainable Handpump Projects in Africa, Interim Report, October 2002. Available at http://www.lboro.ac.uk/wedc/projects/shp

[4] Millennium Development Goals (MDGs) for Water and Sanitation, Country Assessments for Benin, Burkina Faso, Chad, Ethiopia, Ghana, Mali, Mozambique, Niger, Senegal, Tanzania, and Uganda., The World Bank, December 2003.

Table 1 – Data on Handpump Sustainability and Use in Sub-Saharan Africa, by country

Handpump Data, Selected Countries in Sub-Saharan Africa												June 1, 2007
Country	Informant	Estimated Rural Pop. (millions)[1]	Estimated Rural Coverage[1]	Estimated Rural Unserved[1]	Estimated % Served by Handpumps	Estimated Number using Handpumps	Total # Handpumps	# Functioning Handpumps	# Non-Funct. Handpumps	% Non-Functioning	HandPump Priority Ranking	Notes
Angola	Dauda	8.6	40%	5.2	90%	3.10	4,500	3,150	1,350	30%	1.57	UNICEF estimate
Benin	S Adokpo	3.7	60%	1.5	45%	1.00	6,700	5,200	1,500	22%	0.25	
Burkina Faso		10.5	44%	5.9	62%	2.86	22,400	16,800	5,600	25%	5.10	UNICEFCountry Profiles
Cameroon	J.Rihouey	7.7	41%	4.5	50%	1.58	9,000	6,750	2,250	25%	1.28	Estimate J. Rihouey
DRC	G. Kazad	35.3	29%	25.1	4%	0.41	1,500	500	1,000	67%	0.25	approx. 60% use springs
Ethiopia	B.Muluneh	58.7	11%	52.2	30%	1.94	30,046	19,667	10,379	35%	40.67	DHS 2000/HP # calculated
Cote d'Ivoire		9.2	74%	2.4	80%	5.45	19,500	6,825	12,675	65%	6.06	UNICEFCountry Profiles
Guinea		5.5	38%	3.4	85%	1.78	12,500	10,000	2,500	20%	1.81	UNICEFCountry Profiles
Kenya	P. Nduati	19.6	46%	10.6	15%	1.35	12,000	8,400	3,600	30%	1.43	DHS 2003/Estimates
Liberia		1.7	52%	0.8	75%	0.66	1,350	420	930	31%	0.06	UNICEFCountry Profiles
Madagascar	R.Herivelo	12.5	34%	8.3	19%	0.81	2,500	2,250	250	10%	0.10	other service types
Malawi		10.0	62%	3.8	77%	4.77	19,000	11,400	7,600	40%	5.56	MICS 2000 + 2006/WHO
Mali	S.Sutton	8.6	35%	5.6	50%	1.51	14,200	9,400	4,800	34%	3.35	Unicef summaries/Est.
Mozambique	J.Narkevic	12.6	24%	9.6	82%	2.48	17,000	12,700	4,300	25%	8.44	Nat. Water Directorate Data
Niger	I. Sanoussi	9.0	36%	5.8	56%	1.81	7,175	5,025	2,150	35%	2.03	Min. Hydraulics 2005 for # HP
Nigeria	B.Aleobua	65.3	49%	33.3	35%	11.20	80,000	40,000	40,000	50%	116.56	JMP and UNICEF sources/Est.
Sierra Leone		3.0	46%	1.6	55%	0.76	2,500	875	1,625	65%	0.36	Unicef summaries/Est./MICS20
Tanzania	N.Paynter	23.9	62%	9.1	17%	2.52	10,000	6,500	3,500	35%	1.35	
Uganda	S.Mutono	22.0	52%	10.6	60%	6.86	30,000	24,000	6,000	20%	9.50	
Zambia	P.Harvey	7.0	36%	4.5	54%	1.36	15,000	10,200	4,800	32%	2.90	MLGH estimate
Zimbabwe	P.Morgan	8.5	74%	2.2	60%	3.77	38,200	26,800	11,400	30%	3.78	UNICEF inventory/estimate
Totals		343	40%	206	42%	58.0	355,071	226,862	128,209	36%		
[1] = JMP 2004 (Joint Monitoring Program)												
[2] = Priority formula: Rur.Unserved * % handpumps* % non-funct.*0.25(#handpumps/1000)												
Est. = Estimates made where number of handpumps not clearly stated, but assumed to include both boreholes and protected wells.												
HP # Calculated = Actual number of handpumps not inventoried, but number estimated by dividing total population served with handpumps by 250 persons per handpump.												
DHS = Demographic and Health Survey (year of survey in parenthesis)												
UNICEF Country Profiles = Country Profiles for Water and Sanitation, West and Central Africa, UNICEF (2005)												
										jn/research others/handpump data selected ssa countries		

1.4 Similarly, using private sector supply chains as a proxy measure for handpump sustainability, it appears that successful private sector participation has been found only in countries where rural population densities are high, incomes are rising, costs to the consumer are low, and commercial networks already flourish[5]. While these conditions can be found in several Asian countries, no SSA country has to date been identified as meeting most or all of the criteria for successful supply chain creation, with the possible exceptions of South Africa[6] (see Figure 1). Most African countries appear to be many years, even decades, away from creating a self-sustaining private sector supply chain for handpump spare parts, or market-based maintenance and repair services.

1.5 In any case, research looking directly at handpump sustainability is sparse. We cannot even say with certainty what the primary causes are for non-functioning handpumps in any given country or sub-region within a country. Rural monitoring systems are weak or non-existent, and efforts to determine why handpumps are not functioning, maintained, or repaired are seldom attempted or reported. When information is available it generally comes in the form of a "snapshot", not a time series. This may also explain why we have not generally established international or country-specific benchmarks for failure rates, handpump working lives, or down times.

1.6 Over the years, however, we as a subsector have through trial-and-error cultivated a number of standard recommendations and a few best practices, some of which have strong evidence to back them up, while some are based upon professional judgment. Our task is to further promote and conscientiously implement the proven strategies, incrementally improve those in need of improvement, and completely overhaul others.

[5] Setting Up Viable Supply Chains for Hand Pumps in Vietnam, Derrick Ikin and Erich Baumann, SDC, HTN, SKAT, undated.

[6] South Africa is not shown in Figure 1 - it has a population density of 35 p/km² and PPP of $9,160. Bangladesh is at the opposite extreme – a population density of 1,007 p/km² and PPP of $1,590.

2.0 Policy Choices

2.1 The two current lynchpins for rural water supply sustainability are considered to be: (i) the ***Demand Responsive Approach*** (DRA) - where rural populations engage in a process of informed choice regarding their water service; and (ii) ***community management*** - where communities are largely responsible for the long-term operation, maintenance, and management of their communal water supply. Water supplies developed and managed by individuals (whether they serve a single household or multiple households), are considered to be self-supply, and are not covered under this flagship. Similarly, small town water supplies are not the subject of this flagship, although community-managed piped systems for villages would be included.

2.2 It is interesting to note that what were once heralded as key approaches for attaining rural water supply sustainability over the past few decades (three-tiered O&M, VLOM handpumps, the demand responsive approach, community management and standardization of handpump models, for example) have not fully solved the sustainability problem in the African context[7]. Table 2 suggests the direction we want to be heading, and where we currently find ourselves.

Table 2 – Current Situation and Desired Mid-Term Results for Rural Water Supplies

Current Situation	**Mid-Term Desirable Situation**
64% of rural water supplies functional	90% of supplies functional
Capital cost recovery 0-20%	Capital cost recovery >50%
O&M cost recovery 0-50%	O&M cost recovery 100%
Water point working life 3-8 years[8]	Water point working life 9-15 years
Source water insecurity	Source water security
Community management	Management choices
Install-repair-reinstall-repair-upgrade	Install-maintain-upgrade

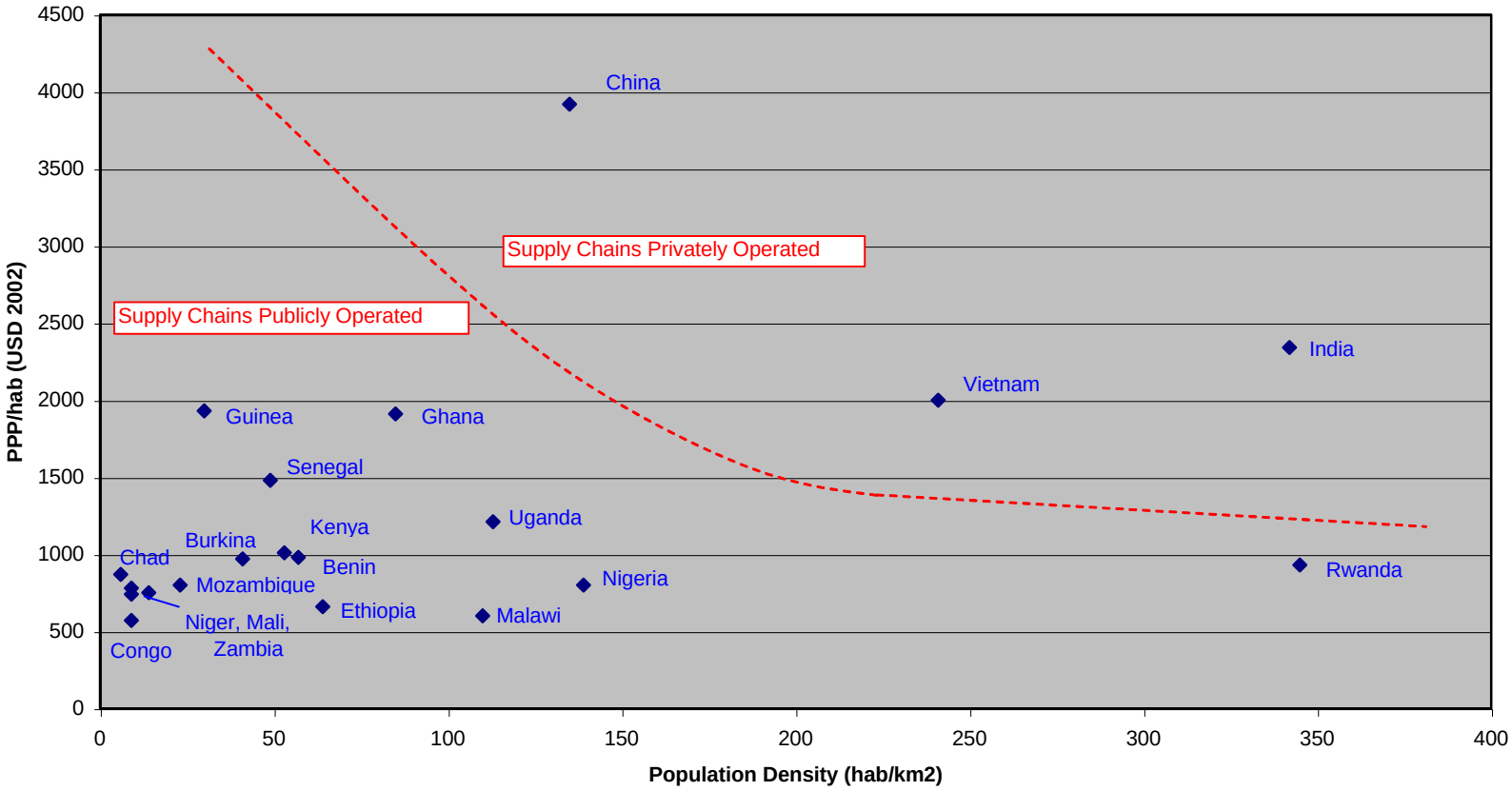
2.3 So what are the correct policy choices for taking rural water supply sustainability to the next level? Should a country limit the number of technology options in use, or open the door to all options? Should a country fabricate all water supply materials (including handpumps) in country, procure imported materials from established retailers in country, or import them at as low a cost as possible? What is the correct balance between investment and O&M costs? Should spare parts availability be made a pre-condition to any distributor winning a bid on supplying construction materials or handpumps, or should the market (or the government) be left to sort out the spare parts supply? Should community management be the only way to care for community infrastructure, or should alternatives be attempted? Should governments provide post-construction support for community-managed infrastructure, or should governments choose to get involved only when the infrastructure has failed?

2.4 These are the kinds of major policy questions each country must answer for itself, however, a flotilla of NGO and donor projects has frequently attempted to answer these questions independently or in an *ad hoc* fashion as problems became self-evident. While many countries have engaged in policy reform processes, these were oftentimes mere pre-conditions for large loans or donor projects, and the reforms themselves were never aggressively implemented or subsequently evaluated.

[7] See, for example, VLOM for Rural Water Supply: Lessons from Experience, WELL Study, Task No:162, Jeremy Colin, March 1999, available at: http://www.lboro.ac.uk/well/resources/well-studies/full-reports-pdf/task0162.pdf

[8] Estimate based upon known handpump sustainability rates and likelihood of early rehabilitation.

Figure 1: Handpump Supply Chains Operation Plotted Against National Income and Population Densities for Select Countries of Asia and Africa



Note: South Africa with a PPP of $9,160 and a population density of 35 persons/km^2 is off the graph, though above the dotted line.

2.5 As it now stands, the average percentage of non-working handpumps (and by extension rural water supplies in general) is approximately 36%, which is leading us toward an ever-growing percentage of investment and institutional effort being channeled to rehabilitate or upgrade failed water supply systems. Is this the logical result of dependency upon outside funding sources for sector investments? Are countries in effect accepting funding for new infrastructure because it is easier to obtain funds for new works as opposed to putting the energy (and funds) into keeping those same systems operating throughout their design lives? Are NGOs being forced to offer low per capita costs for new infrastructure in order to win donor funding instead of offering higher per capita costs that would result in higher rates of sustainability, but that would be rejected by the donor? The move to budget and programmatic support would theoretically allow countries the space they need to make these strategic decisions regarding rural water supplies, but have countries already grown accustomed to the inefficient approaches resulting in part from uncoordinated aid?

3.0 Objectives and Goals of the Sustainable Rural Water Supply Flagship

3.1 *The objective of this flagship is to increase the percentage of functioning community water supplies*[9] *in rural areas through the application of improved policies and practices.* Functionality is defined along a continuum of parameters that includes at a minimum the following: system working lifespan[10]; frequency of rehabilitation; continuity of functioning; down time for repairs; water yield; water quality; and waiting times or number of users.

3.2 The intermediate goals of this flagship include the following:

- To establish unambiguous definitions and proposed benchmarks for rural water supply sustainability[11];
- To increase the useful lifespan of the handpump and other water supply systems;
- To decrease repair down times;
- To improve asset management through increased recovery of recurrent and capital costs;
- To increase the number of options (both technical and managerial) commonly made available to communities;
- To decrease the number / frequency of water system rehabilitations; and
- To decrease the % of water sources that dry up for significant portions of the year.

[9] It will be necessary to explicitly define terms such as “functioning”, “rehabilitation”, “maintenance”, “yield”, etc.
[10] Handpump lifespans, in particular, are likely to vary widely by handpump model, place of manufacture, number of users, and other factors. Additionally, borehole working lifespans need to be studied. While it is assumed that the majority of borehole waterpoint failures are due to failing handpumps and not failing boreholes, this remains to be conclusively shown.
[11] Initially for handpumps in sub-Saharan Africa, other service types and regions will be added in the future.

4.0 Proposed Flagship Strategy

4.1 Key assumptions

- Groundwater will continue to be the primary water source of rural people in Africa.
- Community services will continue to be demanded and offered.
- Africa will present the greatest challenge to water system sustainability, especially handpump sustainability.
- The handpump will continue to be a primary water delivery mechanism for a significant proportion of Africa's population over the next 15 - 20 years.
- Countries will continue to decentralize.
- Water stress will continue to increase.
- Rural incomes will rise slowly.
- Rural population and water supply densities will continue to rise slowly.
- Communities do not always prefer to directly manage RWS services.
- Households are willing to invest significantly in well-performing RWS services.

4.2 Strategic Principles

- Concentrate initially on countries where handpumps are most likely to be used by a significant % of the population during the next 10-15 year period;
- Generate new knowledge that will bring the sustainability factors into sharper focus;
- Develop useful tools that will assist countries in the analysis of their particular situations, and in the eventual improvement of their current policies and approaches, as well as development of new policies and approaches for improving sustainability;
- Engage countries individually and directly on concrete country initiatives and activities;
- Attempt to answer the question, "Why do rural water supplies fail, and why aren't they maintained?", that is, consider the technical, institutional and socio-economic factors of system failure;
- Improve current best practices, while investigating emerging lessons from new approaches.

4.3 Considering the fact that Sub-Saharan Africa is composed of more than 40 countries, many of which are heavily utilizing handpumps for RWS, it is imperative that this work identify at an early stage the countries that would potentially be most impacted, and those which are most concerned about tackling this problem. Interested professionals and institutions that could be instrumental in generating answers to the difficult questions of handpump sustainability will also be identified at this stage.

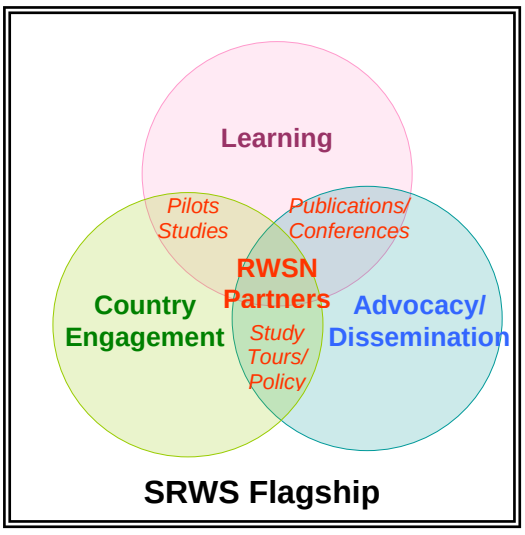
4.4 It is proposed that a Sustainable Rural Water Supply Working Group (SRWS-WG) be formed that would include a small number of people dedicated to assisting this flagship over the next two years. The SRWS-WG will be responsible for monitoring RWSN's progress on SH activities, reviewing key documents (TORs, draft reports, etc), providing substantive ideas and recommendations for on-going and future work, and acting as an entry point to major pathways of dissemination, advocacy, and learning. Some potential SRWS-WG members are suggested in Table 3. Membership would best be maintained at not more than 9 people. The SH flagship coordinator will be responsible for leading the SRWS-WG. Most members should be willing to self-finance their participation, though some payment of expenses may be required.

Table 3 – Potential Sustainable Rural Water Supplies Working Group Members

Potential Partner	Added Value
WEDC	In-depth knowledge achieved through major study on handpump sustainability in Africa; long history of involvement in sustainable rural service delivery
WaterAid	RWS project experience in 11 African countries[12]; leading advocacy agent for rural service delivery
AfDB	On-going investments in RWS in dozens of African countries; direct access to policy and decision makers
World Bank/WSP	On-going investments in RWS in dozens of African countries; direct access to policy and decision makers
UNICEF, CARE	On-going RWS programs in dozens of African countries; interest in innovation
IRC	Intimate contact with regional knowledge centers; history of interest in RWS issues, including O&M and community management
National Governments	Policy-setters and decision-makers; significant investment in RWS; mobilizers of large-scale programs
SKAT	Knowledge reservoir on handpump technology
Other NGOs, universities, knowledge centers, individual professionals, private sector firms, etc.	Variety of skills and networking ability.

4.5 With the core SRWS-WG in place, work would proceed along three specific product lines (as summarized in Figure 2): (1) a ***Learning*** line that looks at *lessons learned* and *emerging practices*; (2) a ***Country Engagement*** line that brings learning to bear on actual policies and implementation approaches in specific countries interested in significantly improving rural water supply sustainability; and (3) a ***Advocacy/Dissemination*** line that disseminates best practice and advocates for improved policy.

Figure 2



[12] Burkina Faso, Ethiopia, Ghana, Madagascar, Malawi, Mali, Mozambique, Nigeria, Tanzania, Uganda, and Zambia.

5.0 Promoting Best Practice

5.1 What are the tried-and-true sustainability strategies and policies that countries should generally be applying? Based upon the existing weight of subsector learning over the past 20 years, the factors shown in Table 4 have been found to be key predictors of longer-term functionality.

Table 4 – Factors Leading to Longer-Term RWS Sustainability

Sustainability Factor	Where Countries Currently Stand	Room for Improvement?
Water system management	Community management standard national policy. Little post-construction support. Few alternatives being tried.	Significant
Capacity building (system caretakers, committee members, area mechanics, builders, suppliers, etc)	Training of community water boards and caretakers standard during construction phase, then stops. Very little capacity building efforts directed at private sector.	Significant
Source Water Protection	Few refer to this in policy documents. Water tables dropping and water quality degraded.	Very Significant
Capital Cost Recovery	Standard national policy. Generally ranges from 2%-10%. No planning for gradual increases in cost recovery levels. Uneven progress in rural poverty reduction.	Very Significant
O&M Cost Recovery	Standard national policy. Tariff levels stagnant. Non-transparent fund collection and use.	Some
Demand Responsiveness	Standard national policy. Choices limited, however.	Significant
Construction Quality	Demanded by national standards. Supervision lax. Private sector qualifications low. Some corrupt practices.	Some
Type of technology	VLOM-type handpumps generally standard. Community service level choices limited, and post-construction evaluation uncommon.	Significant
Spare Part Supply	Few with comprehensive approach.	Significant
Post-construction Monitoring	Most countries with incipient data collection. Occasional household surveys.	Significant

Factors that can best be addressed during the pre-construction/construction phase highlighted in light grey.
Factors that need to be addressed during the post-construction phase highlighted in dark grey.
Factors that need to be addressed both during pre-construction/construction and post-construction not highlighted.

5.2 The factors shown in Table 4 are by no means complete, however, it is likely that for most countries 90% of the sustainability factors will be found among these. It should also be noted that each sustainability factor can be split up into various sub-factors. For example, demand responsiveness would include having evaluated the user's ability to pay, having presented communities with a number of viable service alternatives (both technological and managerial), having established community selection criteria and demand channeling procedures, etc. Likewise each country will be characterized by its own sustainability signature, that is, the exact make-up of their current policy environment, implementation practices, rural income levels, community cohesiveness, and quality of public and private sector services.

5.3 Ratings provided are subjective, and open to debate. Some would suggest that community management has not been fairly tested to date, and that DRA is not especially well implemented in SSA countries[13], and even where these factors have been well implemented, there are few African countries providing communities with post-implementation support, whether social or technical. When support is provided it tends to take the form of direct rehabilitation of existing works, as opposed to regular follow-up.

[13] In research presented on implementing DRA in Sub-Saharan Africa made by Jennifer Davis during the World Bank Water Week in March 2003, it was found than only four of eight "DRA" projects surveyed actually allowed community choice.

5.4 Nonetheless, the flagship recognizes that the community management model can still be strengthened considerably, and potentially result in greater system sustainability. We call this concept "Community Management PLUS" which involves permanent monitoring and follow-up of community managed service provision, either directly through local governments, user associations, or private-sector contractors. CM+ includes making spare parts available locally, provision of technical back-up support, and provision of on-going training opportunities for community members, water committee representatives, local system caretakers, and area mechanics. This model would be expected to have a positive impact on every major factor of sustainability with the possible exception of capital cost recovery, although it would also be feasible to develop CM+ as a fee-based system that includes capital cost recovery.

6.0 The Search for Emerging Lessons

6.1 Though a number of best practices are currently known and can be aggressively promoted, it is also clear that alternative policies, approaches, and ideas are emerging around the continent and elsewhere. New and potentially effective approaches to rural water supply sustainability can be characterized as follows: (1) improved technology, (2) alternative management models, and (3) increased cost recovery (water pays for water.) [see Table 5].

Table 5 – New Approaches to Achieve Sustainability

New Approach to Sustainability	**Descriptive Highlights**
Technological	
Generic spare parts only[14]	Rope and bucket, or similar local solutions, at least 12 countries[15].
Few non-generic spares	Rope pump, Flexipump, etc. (Ghana, Madagascar, Mozambique, Kenya, Senegal, Zimbabwe, among others)
More durable parts	Beer's Piston for Afridevs[16]- Kenya; Afri-Pump
Alternative energy sources	Photovoltaics
Alternative management	
Total Warranty Concept/ Leasing	Manufacturer guarantees handpump operation and maintenance for its entire working life, users pay for this service - Mauritania[17]; similarly the handpump could be leased instead of purchased, with capital and maintenance costs included in periodic lease payments.
Outside Management	Small town operators extend their O&M services to surrounding rural areas, users pay for this service - Angola[18]
Lowest Subsidy	Contractors design/build/operate service, winning bid stipulates lowest subsidy – Paraguay.
FRUGAL[19]	Services built and managed through competitively bid lots covering large areas; users pay O&M and most capital costs over time.
Regular follow-up	Communities are provided with social and technical support either through public or private means; users recover full O&M costs – Honduras, Nicaragua.
Water Pays for Water	
Productive use[20]	Water is provided in quantities sufficient for productive use and income generation, mostly at the household level; users recover high % of investment costs and pay for full O&M and replacement costs
Self-Supply	Users fully pay for upgrading locally appropriate solutions, oftentimes at the household level

[14] Though not a handpump, the rope and bucket does represent a sustainable option that is widely recognized throughout Africa, and is capable of being replaced by a handpump over time.
[15] Dataset for Select African Countries, Rural Water Supply and Sanitation, Joseph Narkevic, WSP/World Bank, unpublished.
[16] See: http://www.handpump.org/handpump.htm
[17] Sustainable Handpump Projects in Africa, S. Parry-Jones, R. Reed, and B.H. Skinner, WEDC, 2001.
[18] Leasing, A New Handpump O&M Concept, Paul van Beers, 27th WEDC Conference Papers, Lusaka, Zambia, 2001.
[19] Forming Rural Utility Groups and Leases. A long-term, private sector management concept under design by WSP-Africa for rural areas, including small towns and disperse rural settlements.
[20] The use of family handpumps for small plot agriculture is widespread. Experience with the treadle pump in Africa shows that income generation can positively influence spare part supply. Atelier International sur les Chaînes de Distribution des Pompes à Pédales, WSP/World Bank, SDC, BNWP, October 2002.

6.2 The flagship expects to follow these new approaches in a variety of ways: through case studies, collection of existing reports and evaluations, personal communications, professional links with the SRWS-WG members, and periodic calls for information.

7.0 Specific Activities and Estimated Budget

The flagship course over the next three years will be guided by its principles, the recommendations of the SRWS-WG, the other RWSN flagship coordinators, the RWSN steering committee, and suggestions and requests from individual countries. The key activities planned are summarized below.

7.1 Application of the Policy Analysis Tool for Handpump Sustainability (PATHS)

As a way of looking at a given country's sustainability signature, the flagship is currently developing a Policy Analysis Tool for Handpump Sustainability (PATHS) which is meant to assist countries to understand their sustainability signature and any possible gaps they may have in their current policy framework or implementation approach. It is expected that three countries (Benin, Burkina Faso and Zambia) will have applied the tool by December 2009, but more importantly have simultaneously begun a process by which they begin to improve in a targeted fashion their current policies and approaches.

7.2 Mapping of the African handpump market and procurement options

The current practice of many development partners in Africa is to seek the lowest unit cost and to procure handpumps internationally. Since the procurement of handpumps is commonly separated from that of spare parts this means that there is a need to develop separate private sector supply chains for spare parts in country. Recent research has shown that stand alone private sector supply chains for handpump spare parts are not viable in much of sub-Saharan Africa[21]. The flagship will map the current market for handpumps in Africa to investigate demand and in country supply, and will investigate different procurement options for increased supply chain sustainability.

7.3 Financial analysis of support options for sustaining community management

The flagship will analyze data from different countries to determine the true costs associated with supporting community management. These will include the costs of back-up support from local institutions (Governmental or NGO) for complex repairs, rehabilitation, expansion and upgrade. This will assist Governments to develop realistic budgets for institutional support for community management in line with CM+ concept.

7.4 Research into private sector options for increased sustainability

The flagship will seek to encourage members and partners to pilot private sector approaches to operation and maintenance of rural water supplies, under an action research initiative. It will also seek funds in order to monitor, evaluate and document such approaches for subsequent dissemination of lessons learned.

7.5 Development of a sustainability monitoring tool

The flagship intends to develop jointly with UNICEF a multi-country Sustainability Monitoring Tool for use in East and Southern Africa as part of a long-term effort being financed jointly by the Dutch Government, UNICEF, and the involved governments. One of the demands of this multi-country effort is the development of a methodology for regularly monitoring rural water supply sustainability.

[21] Harvey, P.A. and Reed, R.A. "Sustainable Supply Chains for Rural Water Supplies in Africa". Proceedings of the Institution of Civil Engineers: Engineering Sustainability, 159(1), March 2006, pp. 31-39.

7.6 Development of relevant advocacy tools

The flagship will develop relevant advocacy tools for generic use and that can be tailored to particular needs of specific countries. These will take the form of 4 page briefing notes, each of which will address interrelated topics covered by the flagship, such as:

- Procurement practices, private sector participation and supply chains;
- Institutional support, budgeting, monitoring and regulation;
- Community participation, community management and sustainable financing; and
- Technology choice, operation and maintenance, and environmental sustainability.

8.0 Flagship Structure

8.1 Sustainable Rural Water Supply is one of RWSN's flagship products and as such falls ultimately under control of the RWSN Steering Committee. The Steering Committee normally assigns leadership for flagship activities to one of its member organizations who retain the services of the flagship coordinator. In turn the coordinator directs the SRWS-WG, composed of anywhere from 5 to 9 interested members, some of whom participate on a *pro bono* basis. In addition, to the Flagship Coordinator, it is also proposed to contract a junior or mid-level analyst to support flagship activities. This analyst would be part time, ideally seconded from one of the partner organizations for a period of 40-50 days per year for at least one year, but could also be a hired consultant.

8.2 It is also proposed to retain the services of up to four professionals that would each be designated "RWSN Country Liaison" in their countries of residence. They would be appointed ideally by their supporting organizations (public or private) as part of a proposed ***RWSN's 2015 Group*** (professionals who agree to support RWSN activities in their countries with a minimum of 2015 minutes per year (at least four days), primarily in facilitating country contacts, distributing RWSN documentation, e-mailing colleagues about RWSN activities, and other networking tasks relating to specific country activities.

8.3 Given the magnitude of the problem and number of contributing factors to handpump sustainability, the flagship will have to coordinate with other organizations independently undertaking complementary work, such as SKAT, WEDC, IRC, IWA, the AfDB, the World Bank, UNICEF, major NGOs, key bilateral donors, and others. It is critical that the SRWS-WG keep apprised of on-going activities outside RWSN, through its professional and institutional networks, and feed such activities back into the flagship so as to enrich the outputs and eventual impact of its work.

8.4 In this same way, RWSN and the SRWS-WG must remain alert for opportunities to use partner organizations to finance country studies locally, in exchange for technical support, peer review, and widespread dissemination.

9.0 Focus Countries

9.1 Based upon initial data analysis regarding sustainability, considering RWSN's historic and substantive comparative advantage in the area of handpumps, taking into account country interest, and in an attempt to create increased impact by working alongside other flagships, a short list of countries which could benefit substantially from RWSN-developed tools and approaches includes the following: Burkina Faso, Ethiopia, Malawi, Mali, Mozambique, Nigeria, Uganda, and Zambia.

9.2 Links to Other RWSN Flagships

The Sustainable Rural Water Supply flagship should be viewed in relation to the other three RWSN themes of Self-Supply, Cost-Effective Boreholes (CEB), and Handpump Technologies (HT). It is expected that the SRWS flagship will coordinate extensively with the HT flagship based at SKAT, in view of the obvious links between the two. Similarly, Self-Supply is seen as one of the management alternatives that would lead to improved sustainability, therefore, the SRWS flagship is obliged to follow-up with the activities of the group. Finally, the borehole (and as a result the CEB Flagship) is a fundamental part of Sustainable Rural Water Supply, especially as regards construction quality, source water protection, and water quality, among other links. For this reason it is crucial that the flagship coordinators and the RWSN secretariat maintain continuous communications (both electronically, as well as face-to-face) so as to identify common opportunities for strategic partnership building, country and regional activities, discussion fora, dissemination of results, and future funding. The coordinators should be careful to schedule studies and events in ways that elicit synergy as opposed to generating conflict, in recognition of the fact that thematic working groups may be composed of different individuals from the same agencies and organizations.

10.0 Logical Framework – Sustainable Rural Water Supply Flagship

Sustainable Rural Water Supply			
Narrative Summary	**Performance Indicators**	**Means of Verification**	**Critical Assumptions**
Goal Increase access and improve sustainability of rural water supplies, especially in sub-Saharan Africa, thereby contributing to all relevant MDG goals.	- increases in coverage and sustainability figures. - reduction in rural poverty levels.	- Joint Monitoring Program Statistics; other national survey and census data.	- Governments invest an appropriate proportion of sector funds in rural service provision.
Purpose Rural households obtain highly-valued community water supply services which they are, therefore, keen to and capable of sustaining indefinitely.	- % of functioning handpumps increases by 10 percentage points over a three year period in countries applying improved approaches.	- Country level data from national databases, sustainability surveys.	- Handpump functionality is a good proxy indicator for the combined sustainability of all rural water service levels.
Outputs ***Learning*** 1. Current best practices for rural water supply sustainability documented and widely disseminated. 2. New approaches to RWS sustainability and improvements to current best practices studied, documented, and widely disseminated. 3. Practitioners and decision-makers engage with one another across countries, disciplines, and world regions on RWS sustainability issues.	- At least one best practice example documented by RWSN per year, and at least two to four other examples documented by others and reviewed by RWSN. - At least one new approach documented by RWSN per year, and at least two to four other examples documented by others and reviewed by RWSN. - At least one study tour per year organized under the auspices of RWSN with participants from at least 7 different countries (perhaps to link with WEDC conferences etc.). - At least three regional activities, workshops, or events held during the period with a minimum of 7 different countries in attendance in each.	- Country level data from national databases, sustainability surveys. - RWSN and flagship annual reports.	

Sustainable Rural Water Supply			
Narrative Summary	**Performance Indicators**	**Means of Verification**	**Critical Assumptions**
Outputs, continued ***Country Engagement*** 4. Country engagement through pilot projects for increasing RWS sustainability. 5. Country engagement through targeted technical assistance to governments, projects, and programs.	- At least three countries adopt new sustainability approaches advocated by RWSN, or undertake pilot and/or demonstration activities in their countries. - At least six countries or major country-level projects/programs receive technical assistance support from RWSN on water supply sustainability.	- Country documents - Project documentation - RWSN and flagship reports	- Pilot/demonstration activities still possible in countries adopting programmatic approaches - Pilots undertaken in ways that will demonstrate replicability
Advocacy and Dissemination 6. Practitioners and decision-makers knowledge base and awareness levels raised on RWS sustainability issues.	- Number of downloads of RWSN documents from RWSN and other websites, with a minimum of 15% increase in downloads per year - Number of dissemination activities through major investment sources such as multilateral organizations, bilateral donors, and senior government professionals active in RWS	- RWSN and other website hit counters - Event reports, RWSN secretariat and flagship requests for information responses	- Decision-maker and senior technicians have ever increasing access to the internet

Sustainable Rural Water Supply		
Activities	**Outputs**	**Linkages**
LEARNING (Best Practices) 1.1 Generation of lessons learned on sustainable rural water supply experiences 1.2 Major factors of sustainability analyzed in depth (e.g. handpump market mapping, financial analysis etc.).	- At least one case study per year sponsored by RWSN of sustainable RWS. - Critical review of two to four non-RWSN studies/documents per year about sustainable RWS. - Case study synthesis documentation prepared in time for 7th RWSN Forum. - One analytical study performed per year on a different aspect of sustainability (DRA, cost recovery, etc)	- Diverse partners, including SS Flagship
LEARNING (New Approaches) 2.1 New approaches to SRWS identified and documented.	- Case study synthesis documentation prepared in time for 7th RWSN Forum. - One in-depth study per year on an emerging approach for achieving improved sustainability (one on new technologies, one on an alternative management approach, and one example of water-paying-for-water) - Synthesis document prepared for 7th RWSN Forum. - Follow-up reports on new approaches	- UNICEF/Dutch projects in East and Southern Africa - SS Flagship
LEARNING (Knowledge Sharing) 3.1 Annual study tour. 3.2 SRWS side events	- At least one study tour relating to SRWS (organized, but not financed by RWSN) - At least one SRWS session held per year in a major sector event	- Interested governments and others through RWSN membership and Steering Committee
COUNTRY ENGAGEMENT (Technical Assistance) 4.1 Policy Analysis Tool for Handpump Sustainability (PATHS) 4.2 Sustainability monitoring 4.3 Misc. TA on demand	- PATHS drafted and tested in at least two countries by June 2009. - Sustainability monitoring process design for East and Southern Africa - Technical assistance missions and reports	- Field testing countries - AfDB and pilot countries - Countries of engagement, and key country stakeholders - UNICEF and governments of Ethiopia, Malawi, Mozambique - HT Flagship

Sustainable Rural Water Supply		
Activities	**Outputs**	**Linkages**
COUNTRY ENGAGEMENT (Pilot / Demonstration Projects) 5.1 Policy Analysis Tool for Handpump Sustainability (PATHS) 5.2 Sustainability monitoring	- PATHS applied in at least four countries by June 2008, and in a total of at least 10 by June 2009. - Summaries of findings from PATHS and sustainability monitoring.	- Field testing countries - AfDB and pilot countries - Countries of engagement, and key country stakeholders - UNICEF and governments of Ethiopia, Malawi, and Mozambique - HT Flagship
ADVOCACY / DISSEMINATION 6.1 Web site updating and maintenance 6.2 Communications strategy 6.3 County liaison 6.4 Networking 6.5 Publications / Translations	- Up-dated content on RWSN website - Quarterly RWSN e-mail alerts on new website content - annual comms workplan and outputs - liaison annual workplan and outputs - regular links maintained with AfDB, UNICEF, World Bank/WSP, WaterAid, WUS, other over time - at least two new flagship publications (e.g. briefing notes) per year, in at least English and French	- RWSN secretariat on website and e-mail alerts - Steering committee and other flagship on annual planning - country linkages through liaisons - see list of organizational links under outputs
CORE x.1 Flagship coordinator fees/expenses x.2 Flagship analyst fees/expenses x.3 Country liaisons x.4 Flagship working group fees/expenses x.5 Proposal development x.6 Miscellaneous activities	- Flagship coordinator workplan delivery - Flagship analyst workplan delivery - Working group workplan delivery - Approved funding proposals	- Flagship coordinator with: analyst, steering committee, secretariat, other flagship coordinators, country liaisons, government representatives, other networks, and more.