

SOURCE development and by-products

Priorities for action

The strategy for distributing the SOURCE tool, now ready for use, has 4 priorities:

- **Launch the systematic observation system over the countries of Sub-Saharan Africa** to meet the widespread need for monitoring, expressed as much by donors as by countries and regional bodies.
- **Encourage recent or new Road Funds, Agencies or Road Administrations** of developing countries to adopt SOURCE as the main tool for monitoring results, primarily on an annual basis.
- **Disseminate the SOURCE method** to the engineering sector (international and local consultants; professional networks; training institutions; etc.).
- Set up a **SOURCE quality label** for measurement campaigns based on local initiatives (voluntary certification procedure under the external quality control method adopted).

This table illustrates the budget of such a system (a virtual observatory, with no need for a permanent structure).

This is only a model. Many aspects are not addressed, among which, the substantial reduction of the distance necessary because of hazardous areas. *Note simply that 40% of the surface area of the African continent is considered to be affected by disorders such as war or civil war. Anyway in all of these areas, road assessment, at all events assessment by the SOURCE method based on actual traffic, would be meaningless.*

The rolling observation system for Africa

According to the reference networks method, application to Sub-Saharan Africa (49 countries) would cover 134,000 km of main roads, (to be assessed systematically every 3 years). This large-scale reference network includes 41% of unpaved roads, the spectrum covered descending to traffic levels below 10 light vehicles per way and per day.

The system, thus consolidated throughout the continent, will naturally enable monitoring of super trunk roads **with a transnational potential**, a greater-than-ever challenge, that increasingly has to be tackled by bodies engaged in regional economic integration.

The next stage will thus be the launching of two 3-year monitoring cycles, including an optional part.

The monitoring system, which will be entirely subcontracted, will include 2 distinct assignments:

(a) general coordination of operations, full responsibility for the measurement campaigns and internal quality control.

(b) external quality control and further research (based on the fast-expanding body of field data).

The total target cost is USD 175,000 per year, averaging USD 10,900 every 3 years per country covered.

Sub-Saharan Africa SOURCE Observatory	3-year cycle over 48 countries	Annual phase (16 countries per year)	Volume for an average country (once every 3 years)
Length to be measured	134,000 approx 41% of which unpaved	44,700 on average	2 800 Range: 150 km to 18,000 km
1. Measurement campaign costs (field costs)			
Hire 4-wheel drive + driver	\$131,000	\$44,000	\$2,750
Fuel + maintenance	\$22,000	\$7,300	\$460
Payroll + per diems	\$100,000	\$33,100	\$2,070
Sundry costs	\$15,000	\$5,000	\$310
Sub-Total 1 :	\$268 000	\$89 400	\$5 600
i.e. per measured km	\$2.00	\$2.00	\$2.00
2. Measurement campaign costs (consultancy costs)			
Local coordination & engineering	\$116,000	\$38,700	\$2,400
Sub-Total 1+2 :	\$384 000	\$128 000	\$8 000
3. Non-campaign costs, external costs			
External supervision and quality control	\$115,000	\$38,300	n.a.
Additional costs, distribution, methodology, etc.	\$26,000	\$8,700	n.a.
TOTAL 1+2+3	\$525,000 over 3 years	\$175,000 In annual phase involving 16 countries	\$8 000 Once every 3 years
i.e. per measured km	\$3.92	\$3.92	\$2.87

Note: All figures rounded except unit costs.

Adapting to specific problems

The SOURCE method is flexible enough to adapt to specific problems.

More intense monitoring than the three-yearly rhythm may be required in certain cases. Special needs may entail a frequency of one measurement campaign per year, for instance to provide objective progress indicators to implement a reform of the national road maintenance and management policy. Road Funds, Agencies or Road Administrations in some countries will benefit from adopting SOURCE as their main network performance monitoring tool.

Still more accurate monitoring of change on a single major road link (or a specific sub-network, e.g. the aggregate portion treated under a rehabilitation program) is also possible by the SOURCE method. Below the threshold of 150 km in length, we simply obtain the standard quality of results by multiplying the measuring runs accordingly.

An exemplary system:

The Ministry of Public Works of Madagascar now applies SOURCE every fortnight, using a slightly adapted measurement protocol, so as to monitor changes, mainly season-dependent, in common travel times and traffic levels on the country's three ultra-priority routes, a total length of around 1,850 km.

*This work is conducted on their return trips by the 3 specialized Ministry of Public Works watch patrols. On their outward trips, every fortnight for the last 6 years, at a rate 5 to 7 times slower, these patrols have been recording, marking out and warning the subdivisions of all new damage and ensuring it is addressed within the time limits established by a quality charter. **The two tools complement each other.***

An everyday tool: the simplified method

For daily network monitoring by the front-line manager, it is possible to derive more summary methods from the SOURCE method, which yield direct in situ estimations of common speeds and common traffic levels over a given route, made "on the move", without any special preparation or training. In this case, the aim will be to determine rough orders of magnitude, for guidance only, which will characterize the pattern of change of a given road link (whatever the season). This information is precious and virtually free of charge, but without actual statistical quality. It has nothing to do with SOURCE standards.

But the spirit of these methods remains in line with the SOURCE method: summary information, immediately available and accessible to everyone, of limited but controlled value, rather than maximum information, never available or never reliable.

For instance:

Assessing the level of traffic while "on the move"? It's easy...

For 10 mn, count the light vehicles (LV) you encounter travelling at a normal speed. If the total is N, the order of magnitude of the daily LV traffic in both ways on this section is $80 \times N$ (in LV/day). (see rationale on the SOURCE CD-ROM)

And if you yourself are travelling according to the "floating vehicle" principle in the simplified version, this assessment is already greatly improved.

