



Longitudinal data and impact evaluation of water infrastructure projects in DRC

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Digital conference: Learning from longitudinal studies in LMIC countries
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EVALUATION AT AFD

In a nutshell



An evaluation policy geared towards **learning**

Two types of evaluation, mostly externalised :



- **Project evaluations**, implemented by AFD offices located in AFD countries of intervention : target of 50% of projects achieved evaluated (33 in 2018, 42 in 2019 and 46 (vs. 68 planned) in 2020)
- **Broad scope evaluations** (thematic, strategic, country, including impact evaluation) : around 10-15 per year

Increased focus on knowledge sharing

Analysing existing data to support projects

- **Use of statistical data from national surveys and satellite images**
- **Context analysis, targeting of beneficiaries, improving vulnerability**



Budget of 1.3 M€



24 evaluators and data analysts

Longitudinal data and impact evaluation of water infrastructure projects in DRC

Description and rationale for an impact evaluation

- **AFD's interest for impact evaluation of water infrastructure project**
 - Measure the effectiveness of sustainable, long term investments in drinking water networks to prevent cholera.
 - Commitment to contribute to **existing empirical evidence** that mainly **focused on the effectiveness of short-term approaches** (distribution of chlorine tablets, filter kits) **or emergency measure** (immunization campaigns).
 - Previous impact evaluation results significantly oriented funding towards responsive actions with short-term effectiveness.
- **DRC-Uvira impact evaluation**
 - Water adduction project supported by the French Development Agency, the Congolese Ministry of Public Health, the Veolia Foundation, the European Union and OXFAM.
 - London School of Hygiene and Tropical Medicine, in charge of the evaluation since 2013.
 - Impact on cholera and severe diarrhoeal diseases.
- **DRC-Kinshasa impact evaluation**
 - Water adduction project supported by the French Development Agency
 - French Institute of Research for sustainable Development(IRD) & Congolese Institute of Statistics, in charge of the evaluation since 2016.

DRC-Uvira: methodology, first results and policy recommendations

- **Methodology: a pragmatic but rigorous evaluation**

- Built in tight coordination with national water company (Regideso)
- Exploits building works schedule for water supply network improvement works
 - **Main component: “Stepped wedge” trial** based on the randomised rollout of the improved water supply network,
 - **Results of interest:** impact on cholera incidence and behaviours change when drinking water sources are closer and run continuously ;
 - **Other components of analysis : time-space analysis ; biomolecular sub-study** to assess the causes of acute diarrhea among patients attending the Centre de Traitement du Choléra.

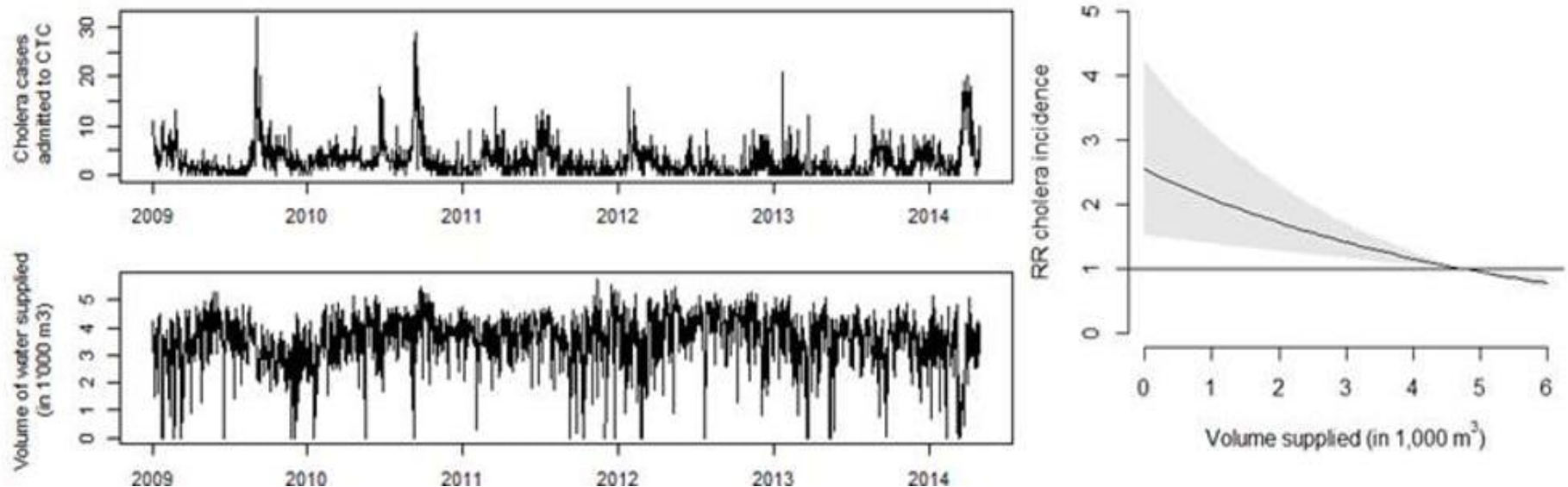
- **Data collection**

- Admin data on admissions at the Cholera Treatment Center
 - **Impact of the project on cholera and other diarrheal diseases**
- Survey on household utilization of water
 - **Impact of the project on household livelihoods**
- Post-flooding survey in 2020
 - **Influence of a natural disaster on household livelihoods**

DRC-Uvira: First results Published in [PLOS Medicine](#), [PLOS ONE](#) and [Nature Clean Water](#)

23% of cholera cases in the city were **caused by interruptions in water supply**

→ Need for not only improve the quality of water, but also its sustainability



DRC-Kinshasa: multiple rounds of data collection

1. April/May 2018:

- 2998 households in 10 clusters
- Exhaustive hh enumeration in project area
- Exhaustive water points data collection in project area

2. April / May 2019 : Follow up survey #1 before COVID

- 2493 panel households → Attrition : 16,84%
- Before the start of the intervention (~baseline #2)

3. April / May 2020 : Follow up survey #2 after COVID (by phone)

- 2921 panel households including 2374 still located in the project area → Attrition : 20,81%
- Additional questions on departure reasons for the « attritors »
- Only one cluster where the intervention was effective
- Admin data recollection from 100 health facilities between 01-2017 > 03-2020

4. April / May 2021 : Endline data collection (ongoing)

- New hh enumeration in project area
- New exhaustive water points data collection in project area
- Attritors survey
- New residents in the project area survey
- Admin data recollection from health facilities

DRC-Kinshasa: impact of improving the drinking water supply system and access on socio-economic variables

- Evaluate the household and individual-level impacts of the project using a quasi-experimental approach (DiD):
 - Identification of control areas that are identical to treated zones but will not directly benefit
 - Panel survey before/after the implementation of PILAEP
 - 4 types of outcomes :
 - Socio-economic impacts: wealth, female employment, child schooling
 - Health impacts: general health, prevalence of water-related diseases (diarrhoea, typhoid, malaria, etc.) particularly among children, water uses & sanitation behaviour
 - Subjective well-being impacts: perceived stress, violence, well-being of adults particularly females
 - Governance impacts: perception and attitudes towards local governance, participation to collective actions, social cohesion
- [More about this IE](#)
- [First WP](#)

DOING MORE AND BETTER : DATA & METHODS

- **IE - Demanding and tricky studies**

- Important failure rates of IE at feasibility stage: (AFD : 50%, IDB : 65%, World bank: 45-60%)
- In DRC research activities continue despite challenging conditions: volatile political situation, security issues, cholera and Ebola outbreaks, important floods, covid-19 crisis.

- **IE - Results that only meet part of our expectations**

- Contribute to knowledge building on development
- Require important human and financial investments (300-800 K€) → at project/policy level matching longitudinal data with admin data or geospatial data help to do more with the same budget
- Limited operational learning → longitudinal data very useful to improve the understanding of individuals' behaviours and designing effective policies
- Not very useful for short term accountability of development banks → take several years to give results

→ High potential of integrating multiple methods and different data sources including longitudinal data in complex evaluations

DOING MORE AND BETTER : DATA & METHODS

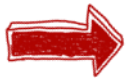
Expand evaluation designs for impact evaluations:

mixed, realist evaluation, process tracing, contribution analysis, QCA, etc.

In line with Noltze, Leppert and Harten, 2018, Impact assessment in complex evaluations, Rural21



Tackling complexity



Improve answer to needs / evaluative questions

Barbrook-Johnson & alii, 2021, Policy evaluation for a complex world: Practical methods and reflections from the UK Centre for the Evaluation of Complexity across the Nexus

What we do:

- ✓ A partnership with ITC ILO Turin and ILO Geneva to collect more data – **including longitudinal data - on LM transitions and youth aspirations in Africa**
- ✓ A research partnership to do more impact evaluation with **counterfactual** on AFD's projects
- ✓ A **research partnership** to facilitate and harmonize evaluability assessment to expand impact evaluation designs
- ✓ A **summer school with J-PAL including 5 keynote sessions open to public (e.g. Esther Duflo, Leonard Wantchekon, Pascaline Dupas) July 5-13th**
- ✓ A **conference** in Sept/Oct on evaluations tackling causality inference with wide range of designs

Thank you

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About MAPME Initiative between KfW, Maptailor and AFD

What we do:

Create a collaboration platform by



MAPME
maps for planning,
monitoring & evaluation



Networking

- Community Meetings, inviting other development banks or key stakeholders
- Public Workshops
- *(Upcoming)* Online platform for discussions and dissemination of expertise



Open-Source Software Creation (GitHub)

- Automation of e.g. outcome and impact assessments
- Reproducible research / packages



Capacity Building and Learning Resources for Practitioners

- Geodata Locator
- Online GIS tutorials (QGIS, R & Python programming)
- Individual Trainings e.g. for field data collection or data analysis.



Provision of Information and Assistance for PMs to use EO

- Open Source Guide to EO in development cooperation
- Standardized TOR
- Support on setting up (open-source) EO contracts for e.g. project monitoring

Individual Projects



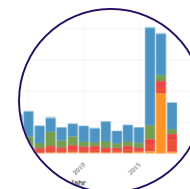
REDD+ Potential:
Mexico (**Planning**)
-finished-



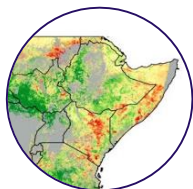
Afforestation: Pakistan
(**Planning**)
-finished-



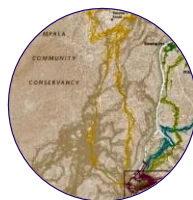
Deforestation, Forest
Fragmentation,
Desertification
(**Evaluation**)
-ongoing-



Protected Areas
Database
(**Reporting & Evaluation**)
-ongoing



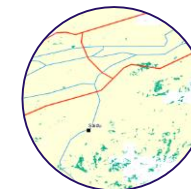
Desertification & Invasive
Species: Kenia,
Somaliland, Ethiopia
(**Planning & Monitoring**)
-ongoing



Protected Area
Monitoring: Tanzania
(**Inception**)
-ongoing-



Infrastructure Planning Health
and Education : Malawi
(**Inception**)
-ongoing



Crop yield monitoring:
Senegal
(**Evaluation**)
-ongoing