

**External Review of the Rimisp Rural Territorial Dynamics (RTD) Project:
Scientific Contributions and Policy Influence**

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**Project Evaluated: IDRC Project #104513 – RIMISP Core Support for Rural
Development Research (Latin America and the Caribbean)**

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Executive Summary

RIMISP Core Support for Rural Development Research (Rimisp-Rural Territorial Dynamics or RTD Project) is a five-year program funded by IDRC in July, 2007 at a level of \$10M; supplementary funding of approximately \$4M has been provided to date by other donors. The program integrates and synthesizes policy, practice and intellectual debate at a flexible, sub-national geographic scale in a way that links and cuts across disciplines. The *general objective* of this research-based policy advisory and capacity building program is to contribute to the design and implementation of more comprehensive, cross-cutting and effective public policies that will stimulate and support rural territorial dynamics in Latin America and the Caribbean (LAC). The initiative was designed and implemented through a networked program involving a diversity of actors.

This evaluation focuses on the program's scientific contributions and policy influence; a companion evaluation focuses on organizational issues. The primary users of this external review are IDRC management and other donors interested in investing in a Rimisp-RTD follow-up program. Data for the evaluation were gathered from multiple sources, including; reviews of selected documents; interviews with selected RIMISP staff; and interviews with key network members and representatives of research and development organizations working in LAC, and (to a limited degree) with development experts working in Asia and Africa. Approximately 50 individuals were contacted, including those who participated in the evaluator's site visits to Chile, Peru and El Salvador. A technical evaluation of the Rimisp-RTD website was also undertaken.

Research Activities – Research began with the preparation of detailed maps (referred to here as 'poverty maps') for eleven countries in LAC that depicted changes over time at municipal-level in per capita income, poverty and income distribution; these maps were then used to select for detailed study 19 territories that had successfully promoted per capita income growth. The final phase of research is synthesizing scientific contributions and distilling policy messages.

Scientific Contributions – Scientific contributions began with the identification of the few geographic areas that had experienced rural income growth in LAC over the past two decades or so. Research on these success stories is making more concrete the notion and the potential usefulness of territories for science and for policy. It became clear that territories could be *created* based on shared, grass-roots visions of the opportunities for sustainable, inclusive growth, and on the shared commitments to promote it. New sets of actors, new rules of engagement, and new sets of supporting policies are required to identify and to solve territorial problems, and there are efficiency gains from choosing territories over existing (generally static) municipalities, states, etc. Innovative contributions by the private sector and by actors from medium-sized cities will be fundamental in many cases. A broader gender lens addresses differences in access to markets, credit, assets, etc. among males, females and other demographic groups, and focuses attention on the bidirectional links between differential access and sustainable, inclusive growth. Spatial and other disconnects between traditional policy instruments and those required to promote rural territorial dynamics are being identified, and solutions are being proposed in some cases. Related, the circumstances under which place-based policies may be more cost-effective than spatially-blind policies are beginning to emerge. The final round of synthesis work should identify the territorial characteristics that are necessary for sustainable, inclusive growth to take place, and the traditional and innovative policy actions required to shape them.

Research Productivity – The scientific program continues to mid-2012 and products will emerge for several years thereafter. To date, approximately 100 internally reviewed Working Papers have been produced. Five papers derived from this Working Paper series have been published in peer-reviewed outlets (with others currently under review), and many of the Working Papers will be included in four edited volumes and a planned special issue of an international journal. When all of the planned publications emerge, the body of published work will be well within the acceptable range for a project of this type and scale, both in terms of volume and quality.

Policy Influence – Even at this early stage, Rimisp-RTD has achieved considerable policy influence. The Rimisp-RTD poverty maps forcefully remind stakeholders of the persistent pockets of rural poverty that remain in LAC, while highlighting the small collection of successes that may be replicable with innovative policy action. The territorial focus reverses the trend towards atomistic decentralization, calls instead for planning and cooperation among selected (usually neighboring) administrative units, and provides guidance regarding which stakeholders to involve and how to do so – the Humedal Cerron Grande Project in El Salvador and the Chiloé Project in Chile demonstrate the logic and effectiveness of this approach. Working Groups on Rural Poverty and Development, such as the one officially launched recently in Mexico, make use of evidence-based policy guidance from Rimisp-RTD, and international agencies such as IFAD are reshaping their rural development strategies based on the concept of territories and the results emerging from Rimisp-RTD research. The recent elevation of two Rimisp-RTD collaborators to ministerial-level positions in LAC reflects the high quality and degrees of policy engagement of many Rimisp-RTD collaborators, and is also a signal of the expected benefits of the territorial focus.

Conclusions – An impressive and regionally unique combination of scientific output and policy influence has emerged at Rimisp over the past four years – much of this progress would not have occurred without the IDRC grant, which I view as cost-effective. Scientifically, the Rimisp-RTD project has undertaken a body of research on rural territorial dynamics that is unprecedented in LAC as regards its geographic scope, its uniformity, and its depth. The research approach adopted by the Rimisp-RTD that focused on territories that experienced growth in per capita income is scientifically justifiable. The volume of scientific output to date has been impressive and the quality of most of the work is high. Looking forward, while the preliminary round of site-specific and synthesis work will be concluded by mid-2012, much important work will remain to be done, and continuity in research focus will pay scientific and policy-influence dividends.

An expanded network of research collaborators, many of whom are politically well-connected and very active, have allowed Rimisp to establish a set of broad-based and efficient research projects, and to quickly leverage early learning and preliminary research results into policy influence. Rimisp has very clearly become a reference point for researchers and an entry point for donors interested/active in LAC. However, influence outside of LAC has been smaller. Relatively small investments in document and website translation, a website upgrade, and strategic involvement in extra-regional activities and events convened/managed by others could help extend the reach of Rimisp without compromising ongoing activities and partnerships in LAC. Greatly expanding Rimisp-RTD research/outreach activities outside of LAC is not recommended.

Body of the Evaluation Report

Background of the Study

The project, RIMISP Core Support for Rural Development Research (Latin America and the Caribbean)-104513, was funded by IDRC in July, 2007. It was originally established as a \$10M, five-year program of which IDRC would fund \$5M and Rimisp would seek the remaining funding from other donors. However, after only six months of operation (January, 2008), IDRC funded the second half of the program so that it was fully funded as originally designed. Subsequently, Rimisp generated approximately \$4M of additional co- and parallel funding for the program.

This program of research addresses rural development in a manner very different to past practice: integrating and synthesizing policy, practice and intellectual debate at a *flexible*, sub-national geographic scale in a way that links and cuts across different disciplines. The initiative was designed and implemented through a networked program involving a diversity of actors.

The *general objective* of this research-based policy advisory and capacity building program was to contribute to the design and implementation of more comprehensive, cross-cutting and effective public policies that will stimulate and support rural territorial dynamics. Specific objectives to strengthen rural territorial development were to: (1) inform policies with strategic, research-based analysis of the dynamics of rural territories and of the determinants of change; (2) strengthen the capacity of public and private development agents to engage in policy-making and program-implementation processes; (3) facilitate dialogue and interaction among rural development practitioners, policy-makers and researchers from Latin America and other regions on approaches to rural territorial development; (4) strengthen the capacity of selected postgraduate university programs in Central America and the Andes; and (5) to support the consolidation of Rimisp as a leading rural development knowledge center.

The program ends in June of 2012, with a significant number of ongoing operations that involve about 20% of the IDRC grant and 40% of the additional (non-IDRC) resources. The scope of the review is the overall program, consisting of the IDRC grant, part of which was utilized as co-funding with several other large grants from the International Fund for Agricultural Development (IFAD), New Zealand Agency for International Development (NZAID) and the Ford Foundation, and several minor grants. The program is a single, integrated effort and while Rimisp is accountable to IDRC for the \$10M grant, the review of the IDRC contract/grant needs to take into account the co-funded activities.

Intended Users & Uses of the External Review

The primary users of this external review are IDRC management and other donors interested in investing in a Rimisp follow-up program. The secondary user is Rimisp.

The key general uses of the overall external review are to:

- account for the \$10M investment;
- better understand how the core funding modality affected key dimensions of scientific and organizational performance in the program;
- assess issues that are of special interest to IDRC and supplemental to the coverage by the program monitoring and evaluation activities; and
- provide guidance for future programming.

This document reports the finds of the evaluation that focused on *scientific contributions and policy influence*.¹ More specifically, the following issues were addressed:

- the quantity and quality of contributions made to the state of knowledge about rural development, including the strengths and weaknesses of the integration of gender dimensions into the research and policy recommendations;
- the theory of change of the Rimisp program, whether it remains valid, and whether or not their work adds up to reasonable progress in that direction;
- the scientific productivity reached in the Rimisp program in relation to the level of investment made by IDRC in the program;
- the intellectual influence of the Rimisp program on key research and development organizations active in a regional or in specific national contexts, including (but not necessarily limited to) universities, large NGO's and think tanks and their networks, and some social organizations and movements, as well as multi-lateral organizations as relevant; and
- policy changes, policies being considered for change/adoption, and any modifications to policy change mechanisms in the region as a result of the Rimisp program.

Values and Principles Guiding the Evaluation Process

Several very important factors influenced the data available for this study, and the interpretation and use of the study's results.

First, the Rimisp-RTD project is ongoing and may just now be entering its most productive phase regarding the generation of suitably vetted scientific products and the policy recommendations based on them. One commonly employed 'rule of thumb' in the arena of agricultural policies is that it takes about a decade from the conclusion of completed body of research to effect comprehensive changes in major national policies.² These factors suggest that this review is premature; another few years, at least, would be required to more concretely judge the effectiveness and the cost-effectiveness of the Rimisp-RTD project. Therefore, this review

¹ A companion document (Weyrauch, 2011) focuses on organizational issues.

² Personal communication, Julian Alston, world leader on the economic returns to agricultural research. Also see Salter and Martin (2001).

makes an effort to identify scientific contributions and policy influence *to date*, and also attempts to *look forward* and assess likely future scientific contributions and policy impacts.

Second, the very considerable co-funding secured Rimisp-RTD complicates the evaluation, in part because co-funding did not begin when the IDRC grant was made.

Third, time constraints precluded reviewing all of the documents or contacting all of the individuals that the evaluator would have liked to have included in the data used for this assessment. With that said, I believe the documents reviewed and the individuals contacted provided an information base to adequately support this evaluation, and the conclusions/suggestions it contains.

Fourth, views differed among stakeholders regarding some of the issues dealt with in this review. Whenever a consensus view was possible to determine, it is reported. Whenever stakeholders' views were sharply divided on an issue, multiple views are reported.

Fifth, there are some disciplinary issues that are beyond the ability of this evaluator (an economist) to address. Whenever such issues arose, input from experts in the field was sought.

Sixth, this review takes as given the results of earlier internal and external reviews of the Rimisp-RTD project.

Finally, Rimisp is one of many organizations in LAC doing research on or seeking to promote sustainable, inclusive growth,³ so attribution issues loom large regarding contributions to science and (especially) to changes in policies, policymaking processes, and policy dialog.

Description of Methodology

The following data collection methods were employed in this evaluation:

- initial orientation meeting at Rimisp offices in Santiago, Chile;

- review of documentation relevant to the Rimisp program, including the initial proposal, annual progress reports, documents available on the Rimisp web site, evaluations conducted by the Rimisp M & E system, and key publications resulting from the program;⁴

- review of the recent international literature on rural development theory and practice;

- interviews with selected Rimisp staff, authors of important Rimisp-RTD reports, and a selection of key stakeholders within the research networks developed for the program;

- interviews with staff from selected key organizations active within and outside the region; and

- interviews with representatives of selected agencies that ultimately provided co-funding or parallel funding to the program.⁵

³ See, for example, Echeverri and Sotomayor (2010)

⁴ See Annex 3 of this report for a list of documents consulted.

⁵ See Appendix 2 to this report for a list of individuals contacted.

Acknowledgements

Rimisp research and support staff worked tirelessly and cheerfully to prepare and deliver the large volume of information upon which this study heavily relies, present and discuss issues related to the program's scientific contributions and policy influence, and help to arrange meetings with stakeholders.

IDRC-Montevideo staff was instrumental in launching this study, and provided very efficient logistical support and guidance on issues of substance throughout the evaluation period.

A long list of stakeholders graciously agreed to provide input into this study; the time and effort they dedicated to preparing for and participating in interviews was considerable.

Finally, a very able set of anonymous reviewers provided suggestions for improving the accuracy and the usefulness of this document.

The efforts of these groups are very much appreciated.

All errors are mine.

Evaluation Findings

The Scientific Contributions of the Rimisp-RTD Program

The seminal contribution of Schejtman and Berdegue⁶ is the RTD program's intellectual point of departure. This paper is recognized and appreciated by all Rimisp collaborators (and many others) as a fundamental contribution to the stock of knowledge, and one that has immediate resonance with a very broad array of stakeholders throughout LAC. In short, this paper, and some important Rimisp work leading up to it,⁷ argues that a new socioeconomic and geographic 'lens' is required to identify options for and ways to promote sustainable, inclusive growth in rural areas in LAC – the proposed geographic lens is the *territory*, which is larger than a município (or county) and smaller than a state (or region), and is comprised of a set of stakeholders that are called upon to promote sustainable, inclusive growth.⁸

The core of Rimisp-RTD research portfolio is comprised of a set of detailed, empirical studies of 19 territories that succeeded in promoting per capita income growth, and some ancillary research activities.⁹ The research program is geared towards identifying the circumstances under which sustainable, inclusive growth has occurred in LAC, assessing the poverty-reduction and other benefits of this growth, and identifying the role of public policies (and in some cases, corporate policies) required to promote such growth. The scientific contributions of the Rimisp-RTD project have already begun to change the ways in which researchers and practitioners think about rural development.¹⁰

Defining Territories—Why and How?

RTD research began with the preparation of a collection of detailed poverty maps.¹¹ These maps permit, for the first time in the context of developing countries, spatially and temporally comparable measures of changes in rural poverty.¹² Among other things, these panels of poverty maps remind all stakeholders of the persistent (and in some countries, pervasive) pockets of poverty that remain in rural areas in LAC, and identify the relatively few collections of municípios (win-win-win territories, they came to be called) that had managed to increase income, and to reduce poverty and income inequality.

The next step in the RTD research program was to select a subset of 19 territories that generated income growth (the first 'win' underlying the poverty maps) and to undertake quantitative and qualitative field research to determine how per capita income growth was achieved, and with what consequences for income inequality, poverty and natural resource management. At this point, RTD's research focus broadened beyond the pair of economic measures used to identify win-win outcomes, to include an array of factors that influenced productivity growth, production

⁶ Schejtman and Berdegue (2007), which takes as background, among others, Acemoglu et al. (2002), Krugman (1991, 1998).

⁷ Especially the work on rural non-farm employment, see Escobar, Reardon and Berdegue (2001).

⁸ Reducing poverty, and making the ownership of and access to assets and services more equitable, are key objectives of sustainable, inclusive growth.

⁹ Rimisp-RTD (2009), page 12.

¹⁰ These categories roughly follow de Janvry and Saudoulet (2007).

¹¹ See, as examples, Larrea et al. (2008), Escobar and Ponce (2008) Naude et al. (2009) and Favareto and Abramovay (2009).

¹² Escobar and Ponce (2008) is an example of an important Rimisp-RTD contribution to the stock of knowledge on this issue.

technology choices, changes in competitive advantage, and factor mobility, all of which helped determined income growth, equity and environmental outcomes.¹³

Several important scientific contributions related to setting territorial boundaries have emerged from this work. First, the boundaries of territories are not historical accidents or (necessarily) drawn to match existing political boundaries. Rather, territories are *created* based on shared, grass-roots visions of the opportunities for sustainable, inclusive growth, and the shared commitments to promote it.¹⁴ Second, the notion of territories represents a reversal of the tendency towards atomistic decentralization that is occurring in much of LAC, where resources and responsibilities are being delegated to municipalities and in some cases to communities. Where municipalities are too small to cost-effectively provide services such as education or healthcare, to support large-scale production activities, or to solve environmental problems, territories offer a framework for *municipios* to work together to provide services at the appropriate scale (e.g., one hospital or high school serving a set of municipalities) or to comprehensively address environmental problems.

An Expanded and Enriched Intuitional Setting

Through the territorial lens, the Rimisp-RTD project is helping to recast the institutional setting needed to effectively promote sustainable, inclusive growth. First, which I consider an emerging fundamental scientific contribution, the importance and the roles of medium-sized cities in defining territories and in understanding RTD processes are now better understood.¹⁵ The incorporation of cities, some of which are located outside the boundaries of territories,¹⁶ has generated some new insights into urban-rural linkages, which could in turn lead to new policy instruments or actions to promote rural development. Second, large-scale private sector actors have long played a role in rural development in LAC,¹⁷ but Rimisp-RTD is exploring ways of managing large-scale enterprises to increase their contributions to meeting territorial poverty and equity objectives.¹⁸ The Chiloé Project is an example of the potential for careful real-time project development and management activities to yield important scientific insights.

Production Systems and the Ecosystems that Support Them

The approach taken by Rimisp-RTD on environmental and natural resource management issues goes *beyond* the endowment of natural resources within a given territory and its role in determining the productivity and profitability of alternative production systems.¹⁹ Case studies in El Salvador, Nicaragua, Honduras, Ecuador, Peru, Bolivia and Chile all revealed the complex and often site-specific relationships between of ecosystem service flows and sustainable, inclusive growth.²⁰ In some cases (e.g., the birth, collapse and rebirth of the salmon industry in

¹³ See Rimisp (2008).

¹⁴ See, for example, Diaz et al. (2010)

¹⁵ See, for example, Berdegué et al. (2010).

¹⁶ See, for example, Hernandez and Trivelli (2011).

¹⁷ See Bebbington, mining examples.

¹⁸ See, as examples, Ramirez et al. (2010) and Escobal et al. (2011d).

¹⁹ Environment and natural resources were not explicitly included in the original set of criteria for identifying successful RTD cases. See internal evaluation (2010) for a review of this issue.

²⁰ See, for example, Escobal et al. (2011).

Chiloé, Chile), the improved understanding of the symbioses between ecosystems and production systems has allowed researchers to identify the environmentally imposed limits to production, and to suggest new local monitoring and evaluation (M&E) activities to guard against overstepping them.²¹

Social Settings and Key Stakeholders

The need for collective action to solve some types of problems or to take advantage of some types of opportunities is not new,²² but Rimisp-RTD research is discovering that problems and opportunities seen through the territorial lens require different sets of actors and different mechanisms for ensuring that the ‘voices’ of different stakeholder groups are heard and have value.²³ Embracing the spatial dimensions of ethnic and other social factors, using these concretely to define territories, and tapping and managing the energy of these groups to promote RTD are important and innovative contributions. In addition, the extra-territorial actors (by definition those located outside territorial boundaries, which can include international actors) are now seen as fundamental players in determining rural development success/failures, and not only in the more obvious cases of territories in which large-scale natural resource extraction is ongoing,²⁴ but also in cases where the linkages are more diffused (e.g., via remittance transfers).²⁵

Rimisp-RTD research is also probing the costs associated with establishing and managing territories, and the new skill sets that may be required to do so (e.g., experienced facilitators to work with public/private stakeholders to exchange views, and especially to sustain negotiations with these groups and arrive at a set of agreed-upon objectives and investments/activities²⁶). Rimisp’s innovative internal policy action fund²⁷ not only motivates researchers to explore these issues in practical ways, but also shed lights on the costs of new territory-based activities.

The research program has also incorporated innovative gender components into selected case studies.²⁸ This work has moved away from ‘feminizing’ research, taking a broader age/gender approach to the problem, addressing issues related to differences in access to markets, credit, assets, etc. among males, females and other demographic groups (e.g., very young and very old), as well as the potential effects of sustainable, inclusive growth on these sub-groups *because of* their differential access to markets, etc.²⁹ This research also focuses on the flip-side of the issue, i.e., the *effects of* differential access on the potential for sustainable, inclusive growth.³⁰ For example, historically determined supply/demand relationships in local labor markets were shown to be of fundamental importance to the success of the salmon industry in Chile; labor mobility

²¹ See, for example, Ramirez et al. (2010).

²² See, for example, Ostrom (2001).

²³ See, for example, Hernandez and Trivelli (2011).

²⁴ See, for example, Hinojosa et al. (2011).

²⁵ See, for example, Stefoni (2011).

²⁶ Personal communications, Eduardo Ramirez (Rimisp-DTR).

²⁷ This is the Rimisp-RTD Advocacy Fund.

²⁸ For the framework, see Paulson et al. (2011), and for an example, see Rodriguez et al. (2011).

²⁹ See, Paulson et al. (2011)

³⁰ See, for example, Portillo et al. (2011).

unconstrained by tradition gender roles helped keep production costs low in the Chiloé territory.³¹

Linking Territorial Development to Regional/National Strategies and Policies

Resources and decision-making power over them are housed in existing institutions that generally do not have territorial objectives or policy instruments designed to promote sustainable, inclusive growth at the territorial level. Promoting territorial objectives therefore requires establishing policy links between territorial objectives and national strategies/actions. To lay the groundwork for such linking activities, the Rimisp-RTD research program systematically assessed the policy objectives, tools and implementing agencies in several countries.³²

The recent (controversial, even within the World Bank) World Development Report³³ put place-based policies at the bottom of the priority list for interventions to spur rural development. Rimisp-RTD takes a different view, and, based in its site-specific research and its synthesis work, is positioning itself to identify the socioeconomic, agroecological and political circumstances under which place-based policies are more cost-effective at promoting inclusive, sustainable development than are the spatially-blind policies aimed at promoting the spatial concentration of economic activities.³⁴

Low-Hanging Scientific Fruit

In addition to the established contributions noted above, several of the forthcoming research products will also make important scientific contributions.

Rimisp-RTD has generated a unique set of high-quality panels of poverty maps. These maps, a description of the tools used to create them, and a synthesis of their contents will be set out in a volume slated for publication next year. However, with focused effort, the maps and especially the underlying data can be used to begin to disentangle the factors associated with different degrees and definitions of sustainable, inclusive growth. The existing cadre of young Rimisp-RTD researchers has the skills necessary to undertake this work; time available to pursue these activities and input from collaborators³⁵ and other research partners will be the limiting factors.

Rimisp-RTD project is currently in the process of synthesizing the lessons learned from the 19 case studies of successful territories³⁶ plus some ancillary research. This final phase of the current research plan could usefully focus on distilling key messages from the rich sets of

³¹ E.g., see Ramirez et al. (2011).

³² See, for example, Cox (2008).

³³ World Bank (2009).

³⁴ Berdegué et al. (2011)

³⁵ See, for example, Escobal and Ponce (2011b) and Saavedra, Arias and Escobal (2010).

³⁶ An alternative scientific approach would be to choose a set of lose-lose territories, or so-called spatial poverty traps, and use them as a basis for understanding the *absence* of sustainable, inclusive growth. Rimisp-RTD might productively collaborate with the Chronic Poverty Research Center (CPRC) on this issue.

data/information available.³⁷ Overinvesting in ‘new research and capacity-strengthening activities’³⁸ could delay efforts to generate scientific contributions from existing data.

A set of five central themes have been identified to guide synthesis work.³⁹ What will emerge will likely be in the form of analytic narratives that enrich discussions and focus future research. These narratives will help prepare Rimisp-RTD to concretely guide the ‘new phase of policymaking and institution-building for rural development.’⁴⁰ This process will be challenging, in part because of the very unique sets of characterizes of some of the most successful territories.⁴¹

The scientific contributions of the synthesis process would be especially useful if the following issues could be addressed:

- identify the fundamental characteristics⁴² that can be used to define and describe territories, and the minimum data sets and analytical methods required to do so;⁴³
- identify the territorial characteristics that are *necessary* for sustainable, inclusive growth to take place *and* that can be addressed via policy action;
- demonstrate ways in which territorial objectives can be linked to national/state-level objectives and to the policy instruments used to achieve them; and
- assess the lessons learned from the win-win territories⁴⁴ that might be applicable for geographic areas that have *not* been able to achieve sustainable, inclusive growth in LAC.

While there is much to do over the next seven months or so to complete this project, some productive forethought during this final phase could be given the following issues/activities, which may become central foci of future research:

- how best to nest territories into existing national and local debates/power structures;
- perhaps in collaboration with existing or new partners, develop the formal capacity to predict the effects of changes in policies, technologies and market prices on sustainable, inclusive growth,⁴⁵ and the environmental and other knock-on effects of such progress at the state and national levels;⁴⁶ and
- build upon Rimisp-RTD success in designing and promoting rural territorial development projects,⁴⁷ and use these projects as testing grounds for some of the core hypotheses regarding policies for promoting sustainable, inclusive growth, and also to generate concrete estimates of the costs associated with promoting RTD.

³⁷ See, for example, Alavaro et al. (2011).

³⁸ Berdegué et al., cover-page box (2011).

³⁹ Berdegué et al. (2011).

⁴⁰ See Berdegué et al. (2011), penultimate sentence, point #20.

⁴¹ See, for example, Cerdan et al. (2011). The synthesis team might consider omitting some ‘outlier’ win-win-win territories from their analysis.

⁴² These may differ from the set of criteria original set out by Berdegué and Schejtman (2004).

⁴³ There are economic models that could be employed to examine the issue of where to draw the boundaries (e.g., Taylor 2011); these models may be particularly useful if beneficiaries are to be taxed to support some RTD activities and investments.

⁴⁴ See Ochieng and Obote (2007) and Schuftan (1993) for a discussion of the positive deviance approach.

⁴⁵ See, for example, Olfert et al. (2011)

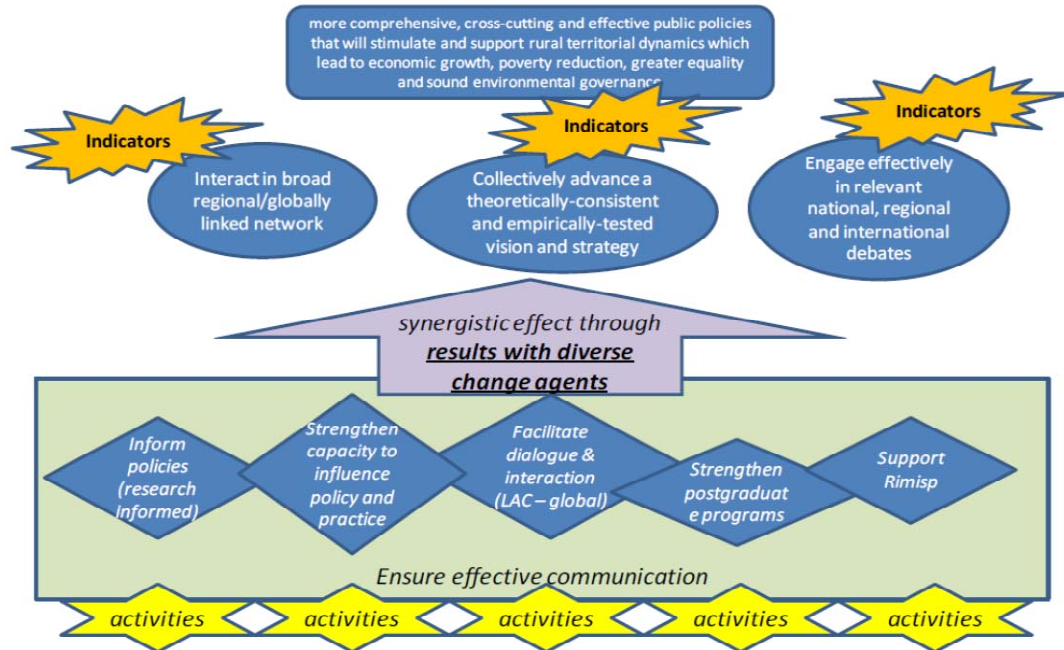
⁴⁶ This may induce the need for a new set of collaborators specialized in the development of predictive models to support sustainable, inclusive growth in rural areas.

⁴⁷ For example, the recently approved IFAD-co-sponsored Mixteca Project in Mexico.

The Rimisp-RTD Program's Theory of Change

The theory of change of the Rimisp program is captured in the following figure which first appeared in the Rimisp-RTD planning document in 2007.

Figure 1: Rimisp-RTD Theory of Change



(Guijt and Iturralde, February, 2009)

The figure captures the strategic pass-through of information and knowledge (some new, some old) from research and other activities to (hoped-for) changes in fundamental public and private sector policies that can promote RTD. Since it was first proposed and agreed upon, progress has been made in refining the definitions that run from activities to the ultimate objective of identifying policy actions for promoting inclusive, sustainable rural development. Progress has been faster for some of the ‘steps’ set out in the figure than for others. Research activities mature slowly, hence, many of the research results needed for ‘advancement of a theoretically-consistent and empirically-tested vision and strategy’ are forthcoming. On the other hand, the presence of a functioning network of collaborators at the outset of the project, along with well-established links to policymakers and policy analysts in many countries in LAC, have allowed the RTD project to ‘engage effectively in national, regional and international debates’ in some cases very early on.

While the figure above remains the published benchmark, RTD research has highlighted several fundamental factors that could be introduced to strengthen the figure and the theory of change it proposes.

First, territories, even those few that have successfully promoted sustainable, inclusive growth in LAC, differ quite significantly from one another as regards their natural resource endowments, connectedness to markets, institutions, etc., and all of these factors influence the activities

required to promote territorial rural development.⁴⁸ So, a ‘layer’ of research and outreach activities could be included in the figure to inform the activities selected.

Second, the formation of effective coalitions is fundamental for RTD success;⁴⁹ while elements of these coalitions may appear organically in territories, in most cases such coalitions will need to be developed and empowered to effectively negotiate territorial objectives. A ‘box’ in the figure highlighting the importance of the coalition formation and management processes would be useful.

Third, there are often disconnects between territorial objectives and both higher-level (e.g., state-level) and lower-level (e.g., village-level) objectives; these disconnects need to be overcome to promote RTD. The figure could benefit from explicitly mentioning the intra-territorial and extra-territorial issues.

Finally, negotiated outcomes need to ‘feed back into’ activities via M&E so as to permit adaptive management at territorial level.

There may be scope for the RTD synthesis team to reflect on and modify the contents of the arrows, ovals, etc., contained in the current theory of change figure.⁵⁰

The Scientific Productivity of the Rimisp-RTD Program

To date, approximately 100 Rimisp-RTD working papers⁵¹ have been produced and most of these are destined for publication as book chapters, journal papers, or both (see below).

In addition, at least five papers reporting the results of RTD-supported research have been published in peer-reviewed journals, and several others are in the pipeline or will shortly enter it.

A strong case can be made that the flow of peer-reviewed scientific products will increase over the next several years as data collection and analyses associated with the RTD project come to an end, and the publishable elements of those analyses emerge. Indeed, this is what one would expect from research projects of this size, complexity, and modus operandi (i.e., projects that move forward incrementally with the identification of new objectives and activities based on what has been discovered by past activities).

More specifically, the following peer-reviewed edited volumes (titles are provisional) are currently being produced and will likely emerge in 2012.

Book 1 – Rimisp-RTD Case Studies and Synthesis. This volume will contain research results from the RTD study sites in México (Yucatán), El Salvador, Nicaragua (Santo Tomás), Colombia, Ecuador (Loja and Tungurahua), Peru (Cuatro Lagunas, Jauja and Valle Sur), Bolivia, Chile (O’Higgins and Chiloé), and Brazil (Jiquirca, Cariri and Santa Catarina), plus a synthesis chapter based on the early case study sites. The manuscript will be delivered to the publisher by mid-December, 2010; it will be published by Teseo Press, Argentina.

⁴⁸ See Berdegué et al. (2011).

⁴⁹ Díaz et al. (2010).

⁵⁰ A theory of change figure currently being used by IFAD (available at: <http://www.ifad.org/nena/retreat/territorial/pntd.htm>) might be a useful model.

⁵¹ Available at: http://www.rimisp.org/inicio/nuevas_subsecciones.php?id_subseccion=30

Book 2 – Panels of National Poverty Maps at Municipio Level. This book is based on the panels of poverty maps developed for 9 of the 11 RTD site countries. It will contain a methodological chapter by Peter Lanjouw (World Bank) and a comparative analysis chapter by Modrego and Berdegué. The manuscript will be delivered in January, 2012; it will likely be published by FCE, Press. Interest in this volume is particularly keen at the World Bank, since (as noted above) this is the most comprehensive set of rural poverty panel analyses ever been undertaken.⁵²

Book 3 - Gender Systems and Rural Territorial Development. This book will be comprised of a chapter setting out a new methodological framework for addressing gender issues in the context of RTD research and action, six case studies on gender analysis and a synthesis chapter. The expected completion date is March, 2012; negotiations are underway with the publisher, Teseo Press, Argentina.

Book 4 - Urban-Rural Relationships and Territorial Dynamics. This book is the result of a co-sponsored workshop involving Rimisp-RTD and the Catholic University, Lima. RTD researchers contributed a chapter on rural cities. The book is edited by Prof. Jose Canziani and will be published by the Catholic University Press, Lima, Peru.

In addition to these volumes, an array of research products spawned by Rimisp-RTD research (but going well beyond the core Rimisp-RTD research themes) will emerge, especially from the stronger and more research-oriented collaborators.⁵³ These products include eight MSc theses (several have already been completed), most of which focused on gender issues.⁵⁴

Negotiations will soon begin with the editors of several international journals for the publication of at least one special issue dedicated to selected site-specific Rimisp-RTD research papers and a synthesis paper.

A blue-ribbon committee of Rimisp-RTD researchers⁵⁵ has been assembled and charged with the task of writing the synthesis document covering all of the field-based research efforts, plus supporting research. Five themes have been selected for syntheses: extra-territorial actors, local management of natural resources, production and access to markets, cities and territories, and social coalitions. The Brief based on the draft synthesis paper prepared for the Rimisp-RTD International Board demonstrates that concrete progress is being made.⁵⁶

Finally, Rimisp-RTD researchers and collaborators continue to actively pursue opportunities to present papers at regional and international conferences.⁵⁷ For example, Rimisp-RTD program-related papers have been presented in major conferences such as the Latin America Studies Association (Rio and Toronto), the XXVII World Conference on Agricultural Economics (Beijing), the 5th Nordic Latin American Research Network Conference (Copenhagen), the 2011 Annual Meeting of the Association of American Geographers (Seattle), the 48th and 49th

⁵² Personal communication, interview with World Bank researcher.

⁵³ For example, see Trivelli et al. (2010).

⁵⁴ See, as examples, Rodriguez et al. (2011) and Bornschlegl et al. (2011).

⁵⁵ Comprised of Julio Berdegué, Javier Escobal and Tony Bebbington.

⁵⁶ Berdegué et al. (2011).

⁵⁷ List of recent presentations provided by Gilles Cliche (Rimisp-DTR).

Meetings of the Brazilian Rural Development Society (SOBER), and the Biannual Meeting on Rural Development Research (SEPIA) in Peru.

So, to date, what has been the cost-effectiveness of the scientific production of the RTD project?⁵⁸ One hundred internally reviewed Working Papers is a very impressive point of departure for this research program. Five papers derived from this Working Paper series have already been published in peer-reviewed outlets (with others currently under review) and many of the Working Papers have identified for inclusion in four edited volumes and a planned special issue of an international journal. Therefore, when the currently planned publications emerge, the body of published work will be large and the core of this literature will be of high quality. In my view, Rimisp-RTD's scientific production is well within the acceptable range for a project of this scale and type.

When assessing the cost-effectiveness of the resources allocated to Rimisp-RTD, it may be useful to imagine scientific productivity under several alternative (albeit hypothetical) scenarios regarding support for RTD-focused research in LAC: (a) that the funds did not come to Rimisp at all; (b) that the funds came to Rimisp in as a series of smaller and more narrowly focused RTD projects; and (c) that the funds were distributed (say) equally among the various Rimisp collaborators currently involved in the RTD project.

Under alternative scenario (a), one could expect that Rimisp would have continued to work on the issues related to RTD and that the group would have attracted some additional funding to support those efforts. However, the geographic scope of the work would have been smaller and the array of collaborators identified more limited (probably to those with the best track records of delivering high-end research products). With fewer 'data points,' the intellectual scope of research would have been narrower, with possible negative implications for synthesis work and the number of scientific products produced.

Under alternative scenario (b), research progress would have been slower and transaction costs higher, again with likely negative implications for scientific productivity.

Alternative scenario (c) is in many ways the most interesting of the three, since it envisions a similar flow of funding to LAC research/outreach organizations currently involved in the Rimisp-RTD project, but without Rimisp-RTD's strong leadership. All of the collaborators queried indicated (of course) that direct funding would have been welcome, but all acknowledged also that the types of research undertaken *independently* would have been much different (with each collaborator pursuing its own RTD-related objectives and using research methods that each was comfortable with), the scientific products produced would have been quite different, and (hence) the potential for synthesis would have been greatly limited.⁵⁹

Finally, as regards the scientific output of the Rimisp-RTD project, two points merit mention. First, most of the scientific products produced to date are in Spanish, thereby limiting the access of non-Spanish-speaking research and outreach communities. Second, the management of RTD research and the generation of RTD research products may have 'crowded out' other Rimisp

⁵⁸ Recall that the project is ongoing and hence Rimisp-RTD has not received all of the resources earmarked for this project, and that publication lag times in research can be considerable (see, e.g., Salter and Martin, 2001).

⁵⁹ Personal communications from collaborators in Peru and El Salvador.

research activities and their products, so the ‘net effect’ of RTD on overall Rimisp publications may be smaller than the count of published papers noted above.⁶⁰

The Demand for Rimisp-RTD Research Products

Alongside this supply of research materials, there has also been considerable increase in the demand for Rimisp products.⁶¹ While this trend is impressive, a technical review of the Rimisp-RTD website identified a series of security- and productivity-enhancing investments that should be made in order to more efficiently and confidently meet future demand.⁶² Box 1 summarizes the issues highlighted in the technical review.

Box 1: Summary of the Technical Review of Rimisp-RTD Website

Website Security

- Security vulnerabilities exist
- Entire system could be relatively easily compromised
- At least one attacker has already taken advantage of weak security

Website Usability

- Website consists of large, separate components that make access slow and challenging
- Website does not follow established Web Content Accessibility Guidelines (WCAG)

Website Traffic Analysis

- Traffic increased over the period 2009-2011
- Majority of visitors were from Chile, speak Spanish, and arrive via search engines
- Average time spent and number of pages viewed per visit decreased over the 2009-2011

Recommendations

- A website overhaul; for a complete set of recommendations, see Annex 4

⁶⁰ Personal communications from Rimisp research staff.

⁶¹ See Rimisp (2011).

⁶² See Goettsch (2011).

The Intellectual Influence of the Rimisp-RTD Program

Even at this relatively early stage in the research-to-policy-change process, the Rimisp-RTD project has begun to influence the thinking and actions of collaborators and of key stakeholder groups from the local to international levels, and to have some effects on policies and on policymaking processes. These contributions are presented in several categories.⁶³

Expanding Policy Capacities

Improving Knowledge and Data⁶⁴ – Rimisp-RTD collaborators tapped large sets of highly detailed secondary data to produce a unique set of panels of poverty maps.⁶⁵ Nineteen case studies of successful territories identified by these maps were undertaken. These studies gathered large amounts of new quantitative⁶⁶ and qualitative⁶⁷ data that are being used to shed new light on the factors influencing sustainable, inclusive growth in rural areas.

Improving Ability to Communicate Ideas – New data, new analytical tools, and large numbers of stakeholder and researcher meetings have helped prepare collaborators and their partners to articulate the core RTD messages to their constituencies, and to convincingly weave the RTD messages into their home institutions' programmatic and political agendas.⁶⁸

Develop New Talent for Research and Analysis -- Within Rimisp, a concerted effort has been made since the beginning of the RTD project to identify, recruit, train, empower, and effectively use the analytical toolkits of young researchers.⁶⁹ A key element of this strategy has been to link these new recruits (and others within the RTD project) with world leaders on selected analytical techniques and issues.⁷⁰ Some RTD collaborators (e.g., GRADE) have also been catalytic in upgrading the skill sets of some research partners.⁷¹ There have also been spill-over effects to students participating in Rimisp-RTD activities at both the MSc and PhD levels.⁷² RTD research and outreach activities are also influencing formal training programs (e.g., a Rimisp-RTD collaborator was recently named Coordinator of the MSc Program in Territorial Development at the University of Central America, El Salvador).⁷³ For other collaborators, exposure to the new analytical tools brought a new appreciation for the challenges associated with doing rigorous analytical work, but probably no lasting upgrades of skills or shifts in the in-house disciplinary mixes.⁷⁷

Broadening Policy Horizons

⁶³ In this section, I borrow from the types of policy influence set out by Lindquist (2001).

⁶⁴ It is noteworthy that a young Rimisp scientist recently received a grant from the Chilean equivalent of the National Science Foundation to pursue RTD research.

⁶⁵ These maps were produced with input and guidance from leading international experts (see Elbers and Lanjouw, 2011); Rimisp-RTD identified and facilitated this collaboration.

⁶⁶ See, for example, Escobal and Ponce (2011a).

⁶⁷ See, for example, Asenio and Trivelli (2011).

⁶⁸ For example, personal communication, PRISMA (El Salvador).

⁶⁹ See the organizational evaluation document (Weyrauch, 2011) for evidence on the change in the age structure of Rimisp research staff since 2007.

⁷⁰ Notable examples include Peter Lanjouw (World Bank) and Tony Bebbington (Clark University).

⁷¹ E.g., see Escobal and Ponce (2011b).

⁷² Personal communications, Susan Paulson (U. of Lund) and Michael Carter (UC Davis).

⁷³ Personal communication, Livia Ivette Gomez, Researcher at Nitlapan, El Salvador.

Providing New Opportunities for Networking/Learning – The knowledge generated by the Rimisp-RTD program is being shared within the expanded RTD network and more broadly. Within the network, structured semi-annual meetings and frequent visits to sites by RTD staff have led important cross-learning experiences, especially important among collaborators who have traditionally been less involved in research.⁷⁴ Outside the network, knowledge has been shared through an array of professional meetings in LAC and more broadly (see Scientific Productivity, above). A recent, large meeting in India was Rimisp-RTD first major international event outside of LAC.⁷⁵

More generally, in terms of knowledge sharing, all of the collaborators interviewed reported that their association with Rimisp has led to a broader understanding and more fruitful discussions of rural development issues.⁷⁶ Indeed, some collaborators rely upon Rimisp to monitor research and policy trends in LAC, and to report these findings and to provide interpretations of them at research and other meetings.^{77,78}

Introducing New Concepts to Frame Debate – The concept of a ‘territory’ is not new, but its use in framing rural development objectives and public- and private-sector actions to achieve them is.⁷⁹ The Rimisp-RTD program’s analytical rigor makes the debate on territories more concrete. The introduction of intermediate cities, especially those located outside the boundaries of territories, increased the numbers and types of groups that needed to be considered for coalitions. Last, but perhaps most important, the central focus on poverty and equity altered both the objectives and the methods of achieving them for many collaborators, some of whom focused almost exclusively in natural resource management issues prior to joining the Rimisp-RTD project.⁸⁵

Enhancing Policy Debates

Improved Debate among Collaborators – To date, not a single collaborator has left the Rimisp-RTD project, in part because of the richness of the formal and informal exchanges that participation in the network affords them. Collaborators reported having new information in hand for identifying territories and new arguments for weaving territories into policy debates.⁸⁰ Of particular importance to collaborators are the field-based (re)confirmation of some of the necessary ingredients for promoting RTD, e.g., the key roles of municipal in supporting the sustainable intensification of small-scale agriculture in Guatemala.⁸¹ Questions remain regarding the extent to which, and the circumstances under which, territories can be the effective counterweights to highly centralized foci of past/some current governments, but that new discussion has begun.⁸² These enhanced debates have increased the demand for input from

⁷⁴ Personal communication, Trivelli (IEP) and Gómez (PRISMA).

⁷⁵ See Abel and Iturralde (2011).

⁷⁶ For a more comprehensive review, see the results of the online survey in Weyrauch (2011).

⁷⁷ There are currently no regional alternatives to Rimisp for these services (personal communication, Kaimowitz, Ford Foundation).

⁷⁸ For example, personal communication, PRISMA (El Salvador).

⁷⁹ For example, personal communication, Stubbs (IFAD).

⁸⁰ Personal communication, participants at a breakfast meeting attended by the Minister of the Environment and a representative of the President’s Office.

⁸¹ See Alvarado et al. (2011).

⁸² Personal communication, Dr. Tohá.

Rimisp; some collaborators indicated that they looked increasingly to Rimisp to signal the ‘minimum disciplinary mix’ and the ‘minimum data sets’ necessary to reasonably address the challenges and opportunities for given territories.⁸³ These debates are also enriched by considering the time and out-of-pocket costs of establishing and maintaining programs to promote RTD. All of the policymakers interviewed reported that their workdays were ‘overflowing’ with commitments – if new activities are required of them, then some current commitments will have to be reduced or ignored.⁸⁴ Finally, while some collaborators were somewhat dissatisfied with what they saw as the slow pace of moving from research to policy action, all appreciated the need for careful thinking, data collection and rigorous analyses – in addition to rigor, Rimisp-RTD has injected patience into debates on territorial policies.

Stimulate Dialog among Decision-makers – Rimisp in general, and Rimisp-RTD in particular, deserves some credit for ‘breathing new life’ into the issue of rural development. There has been a long history of generally unsuccessful efforts in LAC to promote rural development (e.g., Integrated Rural Development Projects of the 1970s-80s).^{85,86} The Rimisp-RTD poverty maps and other Rimisp research⁸⁷ remind decision-makers within and outside public policy arenas that despite significant progress in some countries in reducing poverty (e.g., Brazil), much work remains to be done. The case studies of success stories demonstrate that alternative outcomes exist and that they do not depend on sets of agroecological, socioeconomic or historical circumstances that cannot be replicated.⁸⁸ However, while it is possible to stimulate innovative policy dialog when the policy ‘cart’ is placed before the evidence-based research ‘horse,’ accelerating the generation of case study research results, and especially the synthesis work based on them, is important.⁸⁹

Affecting Policy Regimes

Modification of Existing Programs or Policies – It is very early in the research-to-policy change process to expect major victories as regards shifts in policies or programs. That said, several territorial development projects being designed in collaboration with Rimisp-RTD have recently been funded by bilateral or national agencies.⁹⁰ Another pending success, this time in the corporate world, is the nearly completed project with a very important industry association in Chile that will focus on developing and implementing new partnerships and funding mechanisms for promoting sustainable, inclusive growth in a territory in that country.

In addition, the groundwork within the Rimisp-RTD project is being set for future policy-change successes. For example, reviews of policy instruments and implementing organizations in

⁸³ Personal communication, PRISMA.

⁸⁴ Personal communications, dinner meeting with collaborators and partners in El Salvador.

⁸⁵ De Janvry and Sadoulet (2007).

⁸⁶ FAO (2005).

⁸⁷ Berdegué and Schejtman (2007).

⁸⁸ Berdegué et al. (2011).

⁸⁹ There is some urgency on this issue, vague notions regarding what territories might be or how they can be useful in solving problems in rural areas can undermine the term’s usefulness.

⁹⁰ E.g., the Mixteca Project funded by the Government of Mexico and by IFAD.

selected countries have been done⁹¹ and the very rich historical backdrops against which new policy options must be projected have been prepared.⁹²

Finally, many Rimisp-RTD collaborators are well-positioned to swiftly communicate practical policy guidance to decision-makers of authority, or currently occupy such positions themselves.

Expanding Rimisp-RTD Influence beyond LAC

As noted above, the influence of Rimisp-RTD in LAC is large, especially in the Andean countries, Mexico and selected countries in Central America.⁹³ Indeed, the Rimisp network is the only responsive entity of its kind in the region and it is becoming a point of references for researchers and donors interest/active in LAC.⁹⁴ But Rimisp-RTD influence outside of LAC has been smaller, in part because the majority of its scientific output is in Spanish. The recent India conference helped establish Rimisp-RTD in that region, but follow-up activities there are pending, as are similar strategic, exploratory activities/events in Sub-Saharan Africa.

Conclusions of the Evaluation of Rimisp-RTD's Scientific Contributions and Policy Influence

An impressive and regionally unique combination of scientific output and policy influence has emerged at Rimisp over the past four years – much of this progress would not have occurred without the IDRC grant, which I view as cost-effective. Scientifically, the Rimisp-RTD project has undertaken a body of research on rural territorial dynamics that is unprecedented in LAC as regards its geographic scope, its uniformity, and its depth. The volume of scientific output to date has been impressive and the quality of most of the work is high. An expanded network of research collaborators, many of whom are politically well-connected and very active, have allowed Rimisp to establish a set of broad-based and efficient research projects, and to quickly leverage early learning and preliminary research results into policy influence. Rimisp has very clearly become a reference point for researchers and an entry point for donors interested/active in LAC. Relatively small communication and outreach investments, and strategic involvement in extra-regional activities and events convened/ managed by others, could help extend the reach of Rimisp without compromising ongoing activities and partnerships in LAC.

⁹¹ See, as examples, Ropert (2009) and Favareto (2009).

⁹² See, for example, Ospina et al. (2009).

⁹³ It is also true that Rimisp-RTD has benefited greatly from its collaborators.

⁹⁴ For example, the incoming Director of FAO recently requested an interview with Rimisp staff.

Rimisp-RTD External Evaluation 2011: Scientific Contributions and Policy Influence

Annex 1 – List of Acronyms

DTR – Dinámicas Territoriales Rurales

ECLAC – Economic Commission for Latin America and the Caribbean

GRADE – Grupo de Análisis para el Desarrollo (Perú)

IDB – Inter-American Development Bank

IEP – Instituto de Estudios Peruanos

IFAD – International Fund for Agricultural Development

IDRC – International Development Research Centre

LAC – Latin America and the Caribbean

M&E – Monitoring and Evaluation

NZAID – New Zealand Agency for International Development

PRISMA – Programa Salvadoreño de Investigación sobre Desarrollo y Medio Ambiente

Rimisp – Centro Latinoamericano para el Desarrollo Rural (Latin American Center for Rural Development)

RTD – Rural Territorial Dynamics

WB – World Bank

Rimisp-RTD External Evaluation 2011: Scientific Contributions and Policy Influence

Annex 2: List of Individuals Contacted

Name	Country (office)	Organization	When Contacted	How Contacted
1. Ruben Echeverria	Colombia	Rimisp International Board	9/25/11	Skype
2. Claudia Serrano	Chile	Rimisp	8/30-9/2/11	Meeting
3. German Escobar	Chile	Rimisp	8/31/11	Meeting
4. Hubert Zandstra	Canada	Independent Consultant	11/1/11	Phone
5. David Kaimowitz	Nicaragua	Ford Foundation	9/27/11	Skype
6. Julio Berdegue	Chile	Rimisp	6/16-10/30/11	Emails, meetings
7. Alexander Schejtman	Chile	Rimisp	8/31/11	Meeting
8. Felix Modrego	Chile	Rimisp	8/30-9/2/11	Meeting
9. Ignacia Fernández	Chile	Rimisp	8/30-9/2/11	Meeting
10. Francisco Aguirre	Chile	Rimisp	8/30-9/2/11	Meeting
11. Gilles Cliché	Chile	Rimisp	6/16-10/30/11	Emails, meeting
12. Mónica Maureira	Chile	Rimisp	8/30-9/2/11	Meeting
13. Anthony Bebbington	USA	Clark University	10/21/11	Meeting
14. Gonzalo de la Maza	Chile	Univ. de los Lagos	9/2/11	Meeting
15. Peter Lanjouw	USA	World Bank	10/21/11	Phone
16. Merle Faminow	Uruguay	IDRC	6/16-10/30/11	Emails, Skype
17. Josefina Stubbs	Italy	IFAD	11/14 and 11/18/11	Phone, Skype
18. Antonio Yunez-Naude	Mexico	Colegio de México	10/19/11	Skype
19. Ileana Gómez	El Salvador	PRISMA	9/6/11	Meeting
20. Susan Kandel	El Salvador	PRISMA	9/6/11	Meeting
21. Javier Escobal	Peru	GRADE	9/4/11	Meeting
22. Carolina Trivelli	Peru	IEP	9/4/11	Meeting
23. Eduardo Ramirez	Chile	Rimisp	8/31-9/2/11	Meeting
24. Arilson Favareto	Brazil	Univ. of Sao Paulo	11/7/11	Skype
25. Susan Paulson	Sweden	U of Lund	9/22/11	Skype
26. Deyci Cierra 27. Rodolfo Lopez	El Salvador	Coordinadora CACH Alcalde, San Francisco	9/2/11	Meeting

28. Cecilia Leon 29. Margarita Garcia 30. Rafael Rivas 31. Héctor Arnoldo Recinos		Lempa ASOCTISO/CIHCG Min. of ENRM		
32. Amy Angel	El Salvador	Fundación Salvadoreña para el Desarrollo Económico y Social (FUSADES)	9/7/11	Meeting
33. Ruben Echeverria	Colombia	CIAT	9/22/11	Skype
34. Alain de Janvry	USA	U of California, Berkeley	9/19/11	Written response to queries
35. Octavio Sotomayor	Chile	CEPAL	9/2/11	Meeting
36. Martine Dirven	Chile	Independent	9/2/11	Meeting
37. J. Ed Taylor	California	UC Davis	10/18/11	Meeting
38. Michael Carter	California	UC Davis	10/19/11	Meeting
39. Ousmane Badiane	Washington, DC	IFPRI	10/25/11	Phone
40. Cesar Sotomayor	Lima, Peru	IFAD	9/5/11	Meeting
41. Jorge Tello	Lima, Peru	CAN	9/5/11	Meeting
42. Jose Canziani	Lima, Peru	Catholic University	9/5/11	Meeting
43. Ana Dominguez	Lima, Peru	MIMDES	9/5/11	Meeting
44. Marisa Remy	Lima, Peru	IEP	9/5/11	Meeting
45. Adrian G. Rodriguez Vargas	Santiago, Chile	ECLAC	9/2/11	Meeting
46. Nelson Cuellar	San Salvador, El Salvador	PRISMA	9/7/11	Meeting
48. Jorge Ernesto Quezada Dias	San Salvador, El Salvador	Min. of ENRM	9/7/11	Meeting
49. Jaime Toha Gonzalez	Santiago, Chile	Independent Consultant	9/2/11	Meeting
50. Hugo Flores	San Salvador, El Salvador	Federal Government of El Salvador	9/7/11	Meeting

Rimisp-RTD External Evaluation 2011: Scientific Contributions and Policy Influence

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Rimisp Website & DTR Program Review

October 2011

Jeff Goettsch

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1 Website Security

1.1 Summary

Security vulnerabilities exist on the Rimisp website and the server it is hosted on. Some of the software used on the Rimisp website is out of date by a number of years, leaving the website with years worth of known security vulnerabilities. By using these vulnerabilities an attacker can take over the website by obtaining access to the Webpanel and the MySQL database.

Much of this information is easily available to attackers because the website does not have a properly configured robots.txt file, leaving this information visible to search engines. This allowed me to discover most of the information without having to do much work. I was able to gather more information after discovering what appears to be old and outdated pages on the website.

At least one attacker has already taken advantage of the weak security of the Rimisp website to upload their own files to the server.

1.2 Findings

1.2.1 robots.txt is Not Configured Properly

The robots.txt file on a web server tells search engines what pages they may and may not index¹. The robots.txt file on the Rimisp web site is configured to allow search engines to index every page on the web site, which means a lot of information is available to attackers. Searching on Google reveals the following pages:

Installed applications:

<http://www.rimisp.org/mailman/admin/>
<http://www.rimisp.org/mp/>
<http://www.rimisp.org/phpMyAdmin/>
<http://www.rimisp.org/phpPgAdmin/>
<http://www.rimisp.org/webmail1/>
<http://www.rimisp.org/webpanel/>

Website statistics:

<http://www.rimisp.org/awstats/awstats.pl>
<http://www.rimisp.org/estadisticas/1999/>
<http://www.rimisp.org/estadisticas/2000/>
<http://www.rimisp.org/estadisticas/2001/>
<http://www.rimisp.org/estadisticas/2002/>
<http://www.rimisp.org/estadisticas/2003/>
<http://www.rimisp.org/estas/newstats/>
<http://www.rimisp.org/estas/newstats/>
<http://www.rimisp.org/estas05/reports/>
<http://www.rimisp.org/estas06/reports/>
<http://www.rimisp.org/stats06/>
<http://www.rimisp.org/stats07/>

1 <http://www.robotstxt.org/>

http://www.rimisp.org/user_stats/

Old web pages:

http://www.rimisp.org/fida_old/
<http://www.rimisp.org/login.php>
<http://www.rimisp.org/mailling/admin/>
<http://www.rimisp.org/mailling/admin/abajo.htm>
<http://www.rimisp.org/mailling/admin/arriba.htm>
http://www.rimisp.org/mailling/img_mail/
<http://www.rimisp.org/mailling/php/enviarmail.php>
<http://www.rimisp.org/mailling/php/reg/RegView.php>

PHP Configuration Information:

<http://www.rimisp.org/masivo/info.php>

The visibility of these pages in search engines is troubling because it attracts attackers to your website. Most often an attacker does not target a single website, rather, they search for any website that is vulnerable. Search engines are one tool attackers use to find such websites. I discovered the issues with Webpanel discussed in section 1.2.2 in this way.

1.2.2 Pages and Directories Not Properly Protected

Webpanel

Many of the Webpanel application's pages are accessible without requiring the user to log in. This means the site is editable by anyone who can find these pages. For example, the page at http://www.rimisp.org/webpanel/adm_nuevas_secciones.php is accessible without logging in, and allows the user to open FCKEditor and upload files to the server.

An attacker has already taken advantage of this vulnerability. See Appendix A for a full list of files uploaded to the server by the attacker.

Website Statistics

The statistics pages found with Google in section 1.2.1 are visible to everyone. Although every page on the site is not listed by Google and other search engines, they all are listed by the statistics application AWStats, available at <http://www.rimisp.org/awstats/awstats.pl?month=09&year=2010&output=urldetail&config=www.rimisp.org&framename=index>

These pages reveal the existence of what appear to be many old pages on the website, as well as the use of the phpThumb application, which is discussed in section 1.2.3.

Indexed Directories

The following indexed directories are listed in Google:

http://www.rimisp.org/fida_old/documentos/
http://www.rimisp.org/fida_old/img/
<http://www.rimisp.org/manual/images/>
<http://www.rimisp.org/manual/style/>

<http://www.rimisp.org/masivo/>
<http://www.rimisp.org/phpPgAdmin/classes/>
<http://www.rimisp.org/webmail1/images/>

Most often, indexed directories are a sign of poor server configuration rather than an intentional decision. Thus having indexed directories listed in search engines invites attackers to look more closely at your website.

PHP Info Page

The PHP info page available at <http://www.rimisp.org/masivo/info.php> is visible to everyone. This page displays a lot of information about the server's PHP and Apache configurations. Any page such as this makes an attacker's job easier, and should thus be hidden from their view.

1.2.3 Software Issues

Outdated Software

A summary of the outdated software used on the Rimisp website is shown in Table 1.1. For a list of all the bug fixes and security updates available, see Appendix B.

Software	Version Used	Latest Version
Apache web server	2.0.52 September 28, 2004	2.2.20 August 30, 2011
PHP programming language	4.3.9 September 22, 2004	5.3.8 August 31, 2011
MySQL database	3.23.58 September 15, 2003	5.5.15 July 28, 2011
FCKEditor	2.3.x 2006	3.6.1 June 16, 2011
Mailman	2.1.5 May 15, 2004	2.1.14 September 20, 2010
phpMyAdmin	2.6.1-p13 January 24, 2005	3.4.4 August 24, 2011
phpThumb	1.2.8 January 19, 2004	1.7.11 August 8, 2011
Uebimiau	2.7.9 October 12, 2005	2.7.10 March 1, 2006

Table 1.1 Outdated Software Used by www.rimisp.org

MPanel

When you log in to the MPanel application it tells you which databases you have access to, and which databases you do not have access to. Since MySQL is configured to allow the anonymous user

access to the test database, you can get a list of all MySQL databases on the server by simply clicking the Login button.

Additionally, the MPanel application stores the username and password as plain text in the cookie. If an attacker can find a way to steal the website's cookies, they can get the MySQL root password and gain access to the database.

phpThumb

A vulnerability that allows phpThumb to read files that are not images was discovered on May 27, 2005 and fixed in version 1.5.4². This vulnerability allows attackers to read any file on the web server that they can guess the path to, including the Apache configuration, PHP configuration, MySQL configuration, and all PHP files. An attacker can exploit this vulnerability to gather information that would allow them to hack into the server, and to gain access to MPanel, phpMyAdmin, and the Webpanel.

As an example, here is how to get the MySQL root password:

1. go to <http://www.rimisp.org/proyectos/phpThumb.php?src=webpanel/index.php>
2. view the page source and you will see the file `lib/db.php` is included
3. go <http://www.rimisp.org/proyectos/phpThumb.php?src=lib/db.php>
4. view the page source and you will see the database name; you will also see the file `lib/conf.php` is included
5. go to <http://www.rimisp.org/proyectos/phpThumb.php?src=lib/conf.php>
6. view the page source and you can see the name and password for the database

Now you can use the name and password to log in to MPanel or phpMyAdmin. Since you also know the database name, you can get the names and passwords needed to access Webpanel.

Webpanel Passwords

The Webpanel system does not use hashed passwords. Instead, all passwords are listed in the database in plain text for anyone with access to read. If an attacker uses the phpThumb vulnerability discussed above, they can read these passwords and gain access to the Webpanel.

1.2.4 Other Issues

PHP Configuration

Three dangerous PHP settings are turned on: `allow_url_fopen`, `display_errors`, and `register_globals`.

`allow_url_fopen` allows PHP to work with remotely included files. If a page uses this feature and is not properly protected, the Rimisp website will be vulnerable to code injection attacks³.

² <http://osvdb.org/16887>

³ https://www.owasp.org/index.php/Code_Injection

`display_errors` sends PHP error messages to the web browser. These messages contain sensitive information and should never be visible except under testing conditions.

`register_globals` allows PHP to automatically create variables based on any value passed to it by GET, POST, or COOKIE. Any page which does not properly initialize its variables is susceptible to numerous security vulnerabilities.

HTTP TRACE Requests are Enabled

HTTP TRACE is a request that may be sent to a web server for debugging purposes. When an HTTP TRACE request is sent to a web server, it echoes back whatever is sent to it. In this manner if a cross-site scripting vulnerability also exists on the server, an attacker could steal a user's cookies by having the server echo them back to another website⁴. An attacker could use this vulnerability to gain entry to Webpanel, MPanel, or phpMyAdmin.

No Encrypted Connections Available

No encrypted connections are available to connect to the Webpanel, MPanel, phpMyAdmin, or Uebimiau webmail. When a user logs in his or her name and password are sent, unencrypted, from their web browser to the server. Any computer that is part of the path between the two endpoints can read this information. A savvy attacker could perform a man-in-the-middle attack to steal this information.

1.3 Recommendations

1. Replace each instance of phpThumb on the website with the latest version, 1.7.11. Make sure to disable debug messages after setting it up.
2. You have to consider the MySQL root password and the passwords for the Webpanel as compromised. Each of these passwords needs to be changed.
3. Each page belonging to Webpanel needs to be secured so that it is not viewable without logging in. You can do this by simply setting the `$test` variable to `0` in the file at <http://www.rimisp.org/lib/conf.php>.
4. Delete MPanel from the server and only use phpMyAdmin instead. phpMyAdmin provides the same functionality without the security issues discussed in section 1.2.3.
5. Create a proper `robots.txt` file at <http://www.rimisp.org/robots.txt>. See Appendix C for the recommended file.
6. Any old pages that are no longer in use should be removed from the server.
7. Any files the attacker uploaded to <http://www.rimisp.org/FCKeditor/UserFiles/File/> should be deleted from the server.
8. The remaining statistics pages should be password protected. The server administrator will have to do this.
9. The page with the PHP configuration information at <http://www.rimisp.org/masivo/info.php> should be password protected or deleted. The server administrator will have to do this.

⁴ https://www.owasp.org/index.php/Cross_Site_Tracing

10. All indexed directories should be closed. See Appendix D for a `.htaccess` file that does this.
11. `allow_url_fopen`, `display_errors`, and `register_globals` should be turned off in the PHP configuration. See Appendix D for a `.htaccess` file that does this.
12. HTTP TRACE should be turned off. See Appendix D for a `.htaccess` file that does this. For it to work, the server administrator will have to load the Apache `mod_rewrite` module⁵ into Apache.
13. Evaluate the security issues listed in Appendix B and determine if you need to move to a server with more recent versions of Apache, PHP, and MySQL.
14. Consider switching to a content management system that supports hashed passwords.
15. Consider moving to a server with HTTPS support so that man-in-the-middle attacks will not be able to steal usernames and passwords.

⁵ http://httpd.apache.org/docs/current/mod/mod_rewrite.html

2 Website Usability

2.1 Summary

Each page of the Rimisp website consists of many separate, large components. Pages are therefore slow to load because the browser has to make many requests to get all the content, and the content is large so it takes longer to download. A number of optimizations can be made to improve both situations.

The Rimisp website does not follow the Web Content Accessibility Guidelines (WCAG)⁶ very closely. The website contains many accessibility errors on each page and aspects of the design fail the color contrast guidelines. Users with disabilities will have a hard time using this website.

The design of the Rimisp website has some good elements and some bad elements in regards to usability. Most notably the navigation is well thought out, but portions of it behave poorly.

2.2 Findings

2.2.1 Performance

Pages Have Lots of Components

A sample of pages from the Rimisp website and their number of components and total download sizes is listed in Table 2.1. Each component requires an additional HTTP request to be made by the web browser, increasing the time it takes each page to load.

Page on Rimisp Website	# of Components	Total Size of Download
/inicio/index.php	37	681.55 KB
/proyectos/index_portada_noticia.php?id_proyecto=180	26	458.14 KB
/proyectos/seccion_adicional.php?id_proyecto=180&id_sub=701	65	875.80 KB
/inicio/nuevas_subsecciones.php?id_subseccion=10	32	894.01 KB

Table 2.1 Sample of Page Sizes

One contributing factor to the large number of components is the use of spacer images in the design. On the Rimisp website there are six:

1. http://www.rimisp.org/images/pix_10_10.gif
2. http://www.rimisp.org/images/pix_1_1.gif
3. http://www.rimisp.org/images/pix_4_4.gif
4. http://www.rimisp.org/images/pix_5_5.gif

⁶ <http://www.w3.org/TR/WCAG20/>

5. http://www.rimisp.org/images/pix_6_6.gif
6. http://www.rimisp.org/images/pix_7_7.gif

Each of these images can be eliminated and replaced with a CSS rule that provides the equivalent spacing.

Page Components Are Larger Than They Need to Be

The Rimisp web server does not utilize Gzip compression to reduce the size of its PHP, CSS, and JavaScript files. Employing Gzip compression on the server can generally reduce the size of these files by about 70%⁷, greatly reducing the time they take to download.

The Rimisp website contains images that are very large in size. These images can be optimized to reduce the file size without noticeably affecting their quality. For example, look Images 2.1 and 2.2. Image 2.1 is the original from the website, and is 100 KB in size. Image 2.2 is an optimized version that is only 40 KB in size, and yet they are nearly identical in appearance.



Image 2.1 100 KB Image From http://www.rimisp.org/inicio/nuevas_subsecciones.php?id_subseccion=10



Image 2.2 40 KB Version of Image 2.1

Thumbnail images created with the phpThumb software suffer from the same problem. They all have the quality set at 99%, yet in many cases the quality setting can be lowered to achieve a smaller file size without affecting the quality of the image. Consider Images 2.3 and 2.4. With the quality set at 99% the original image from the website is 37 KB in size, and with the quality set at 70% the image is only 9 KB in size.

⁷ <http://developer.yahoo.com/performance/rules.html#gzip>



Image 2.3 37 KB Thumbnail Image Created With phpThumb (quality = 99%)



Image 2.4 9 KB Thumbnail Image Created With phpThumb (quality = 70%)

Each PHP page on the Rimisp website contains at least two large sections of inline JavaScript that is identical on all pages. One of these sections controls the drop down menus across the top of the page, and the other controls the menus down the left side of the page. This means that each time a user opens a new page this identical content is downloaded again. This code should be moved to an external file so it can be downloaded once and then cached by the web browser. Then when a user loads a new page they will not have to download this large section of code again.

2.2.2 Website Accessibility

Accessibility Errors

A sample of pages from the Rimisp website and the number of accessibility violations they exhibit is shown in Table 4.1. The most common violations seem to be that images are missing the alt attribute and the units for font and element sizes are absolute, rather than relative. The alt attribute on images provides a text alternative for users who cannot see (their screen reader can read the alt text to them). This is only necessary for images that contain text. Relative units for fonts and other elements allow the page to scale properly if the user sets a different default font size in their browser. Another issue on each page is that the language of the document is not specified. This is needed so that screen readers know how to pronounce the words on the page. See Appendix E for a list of all the accessibility errors on the DTR program page.

Page on Rimisp Website	# of Errors Found by WAVE	# of Errors Found by Total Validator
/inicio/index.php	70	177
/proyectos/index_portada_noticia.php?id_proyecto=180	71	187
/proyectos/seccion_adicional.php?id_proyecto=180&id_sub=701	44	108
/inicio/nuevas_subsecciones.php?id_subseccion=10	44	435

Table 4.1 Sample of Accessibility Errors

Color Contrast Errors

A listing of the violations of the color contrast guidelines for text and background colors in the Rimisp website design is shown in Appendix F. Each of the 19 violations is a portion of the website that some people with color blindness cannot see. The color contrast guidelines should be followed to ensure that all content is visible to users with any form of color blindness.

Keyboard Navigation is Poor

The horizontal sub-menus are inaccessible to a keyboard-only user. Using the keyboard you can tab between the top-level links, but when a sub-menu opens there is no way to tab to those links. These menus should behave in the same way as the navigation on the left-hand side of the page, which correctly allows full keyboard navigation. Additionally, when tabbing among links, the visual style does not change, giving no feedback to the user about which link they are on. CSS rules should be used so that links change their visual style when in focus.

2.2.3 Design

Finding Content

The main navigation of the Rimisp website is well laid out. Navigation across the top and down the left side of the window is a familiar pattern for users which makes it easy to find content. The website also has a site map that provides an overview of the entire website structure, and a search box to allow searching within the website.

Navigation

The menus across the top of the page open when clicked rather than when the mouse hovers over them, making them easier to use⁸.

In the main navigation and on the site map, there is nothing to differentiate what is a link and what is a menu. This creates the problem where you expect to open a menu but instead click a link to a new page. This issue is made worse by the performance issues discussed in Section 2.2.1. The menu system should be reworked so that either every item is a menu, or there is something to visually separate what is a link from what is a menu.

The sub-menus that open in the menus across the top of the page do not expand in size with larger amounts of text. For example, the sub-menu that opens when you click “Publicaciones” has two

⁸ <http://uxmovement.com/navigation/why-hover-menus-do-users-more-harm-than-good/>

links that get cut off and one at the bottom which overflows the background, making them impossible or hard to read. See the highlighted section of Image 4.1. Additionally, the links in these sub-menus are written into the page as JavaScript links, which means when you hover over them with your mouse you cannot see the address of the page they take you to. These menus should be rewritten to address these two issues.



Image 4.1 Sub-Menu Overflow

Where Am I

It is easy to get lost on the Rimisp website. There are no breadcrumbs to show where you are⁹. Some links to different projects will open new windows. If a user starts on the home page, navigates to a project page, and then navigates to another project page, suddenly they have three windows open. It is generally acceptable to open links to different types of content, such as PDF files, in new windows. However, normal links within a website should not do this.

There are differing styles of headings and differing styles of links used throughout the Rimisp website. See Tables 4.1 and 4.2 for examples. This creates an inconsistent user experience. If a user has to figure out what text is a link each time they navigate to a new page, it interferes with their ability to consume the website's content.

⁹ [http://en.wikipedia.org/wiki/Breadcrumb_\(navigation\)](http://en.wikipedia.org/wiki/Breadcrumb_(navigation))

Page on Rimisp Website	Heading Style
http://www.rimisp.org/inicio/nuevas_subsecciones.php?id_subseccion=17	RIMISP EN LOS MEDIOS
http://www.rimisp.org/inicio/nuevas_subsecciones.php?id_subseccion=10	Revista Equitierra
http://www.rimisp.org/proyectos/index_portada_noticia.php?id_proyecto=180	Programa Dinámicas Territoriales Rurales
http://www.rimisp.org/inicio/noticia.php?id=480	Noticias

Table 4.1 Differing Major Heading Styles

Page on Rimisp Website	Link Style
http://www.rimisp.org/proyectos/index_portada_noticia.php?id_proyecto=180	Ver más Ver más Ver más
http://www.rimisp.org/inicio/noticia.php?id=480	<u>Territorio</u>
http://www.rimisp.org/proyectos/noticias_proy.php?id_proyecto=180&id=1316	www.rimisp.org/dtr/documentos
http://www.rimisp.org/proyectos/seccion_adicional.php?id_proyecto=180&id_sub=399	Descarga PDF

Table 4.2 Differing Link Styles

Recommendations

1. All text components and images should be compressed with Gzip. See Appendix G for additions to the .htaccess file that do this. For it to work, the server administrator will have to load the mod_deflate module¹⁰ into Apache.
2. Reduce the size of images by compressing them as much as possible before the quality degrades too far. Software such as Adobe Photoshop¹¹ or the GNU Image Manipulation Program¹² can help do this. Thumbnail images created with phpThumb can have their quality adjusted by changing the 'q' parameter in the URL.
3. Move all inline JavaScript code that is longer than a few lines into its own file.
4. Edit the horizontal menus to operate in the same manner as the menus on the left-hand side of the page. That is, instead of having JavaScript links that insert the sub-menus, instead have the menus in an invisible <div> element on the page. Then have the JavaScript link alter the CSS for the <div> element to make it visible.
5. Fix all links to open in the same window.
6. Replace all spacer images with CSS rules.

¹⁰ http://httpd.apache.org/docs/2.0/mod/mod_deflate.html

¹¹ <http://www.adobe.com/products/photoshop.html>

¹² <http://www.gimp.org/>

7. Edit your CSS code so that all links have the same styles for the :focus effect as they do for the :hover effect to aid in keyboard navigation.
8. Develop style guidelines that include header and link styles and implement them throughout the site.
9. Add the relevant alt attribute to any images that contain text.
10. Specify the language in the <html> element on each page.

Recommendations For Next Time You Redesign The Website

1. Use the tools listed in Appendix H to learn more about accessibility.
2. Follow the WCAG color contrast guidelines when designing the website.
3. Implement the design using relative units throughout the HTML and CSS.

3 DTR Program Traffic Analysis

3.1 Summary

Google Analytics for the DTR program were analyzed for the time period from April 2009 through September 2011. The overwhelming majority of visitors are from Chile, speak Spanish, and are arriving from search engines. The DTR program's website showed growth in the number of visitors in 2009 and 2011, but showed negative growth in 2010. The program's website also showed that while the number of visitors is increasing, the average time spent on the website and the number of pages viewed per visit is decreasing, while the bounce rate is increasing.

3.2 Findings

3.2.1 Location of Visitors

The ten countries with the most visits to the DTR program's website are all in Central or South America. Chile has the most visits, followed by Mexico, Colombia, Guatemala, Peru, Argentina, Ecuador, Bolivia, Honduras, and the Dominican Republic. This data is displayed in Figure 5.1. The growth rates of visits from each country by year is displayed in Figure 5.2.

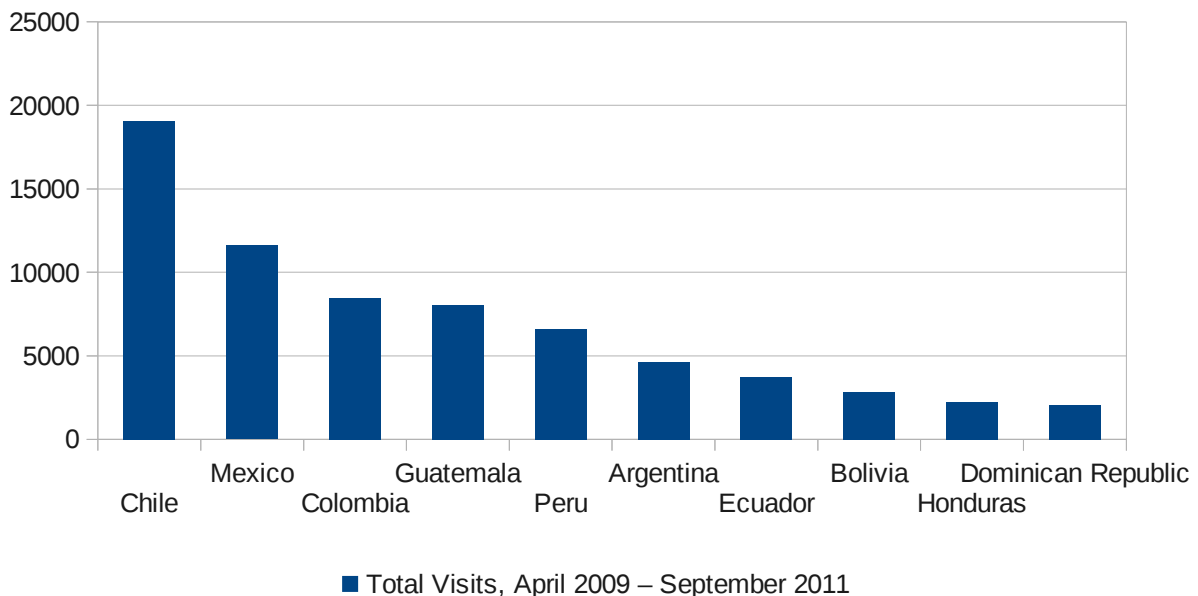


Figure 5.1 Total Visits From Top 10 Countries

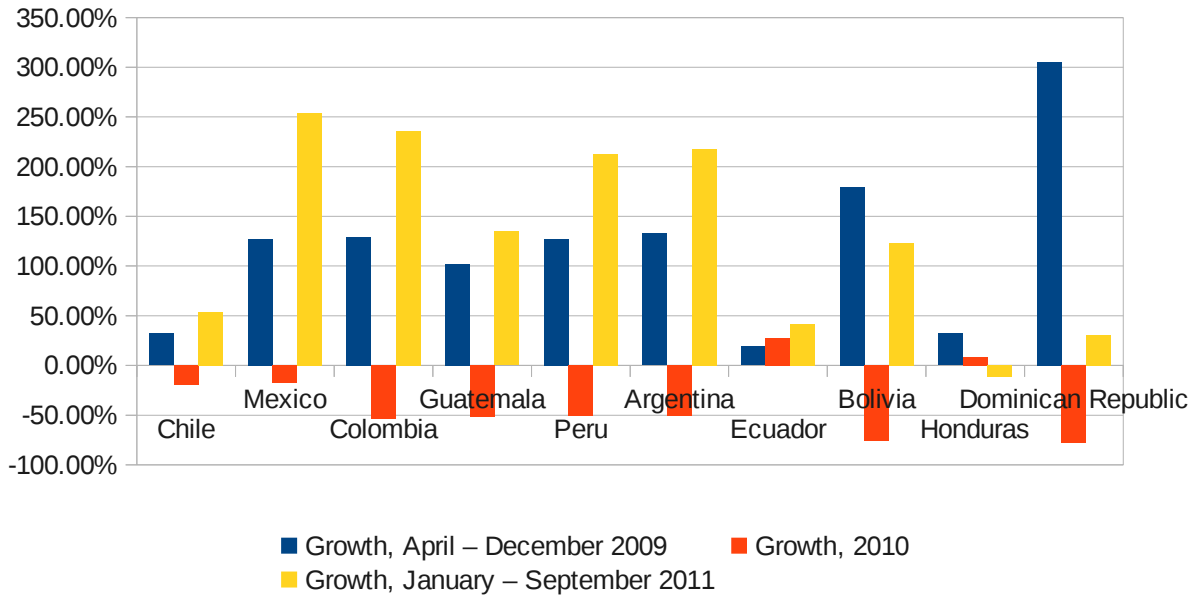


Figure 5.2 Growth of Visits From Top 10 Countries

3.2.2 Language of Visitors

The overwhelming majority of visitors to the website primarily speak Spanish. A small but sizable number of visitors speak English, and an even smaller number of visitors speak either Portuguese, French, or German. This is displayed in Figure 5.3. The growth rates of visits from each language by year is displayed in Figure 5.4.

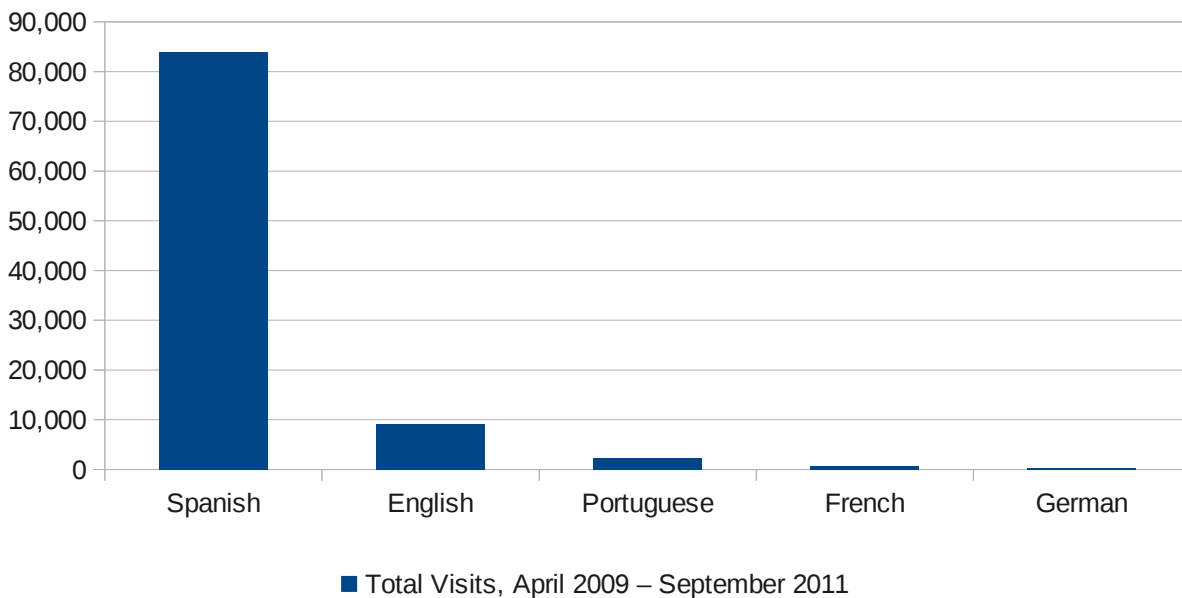


Figure 5.3 Total Visits From Top 5 Languages

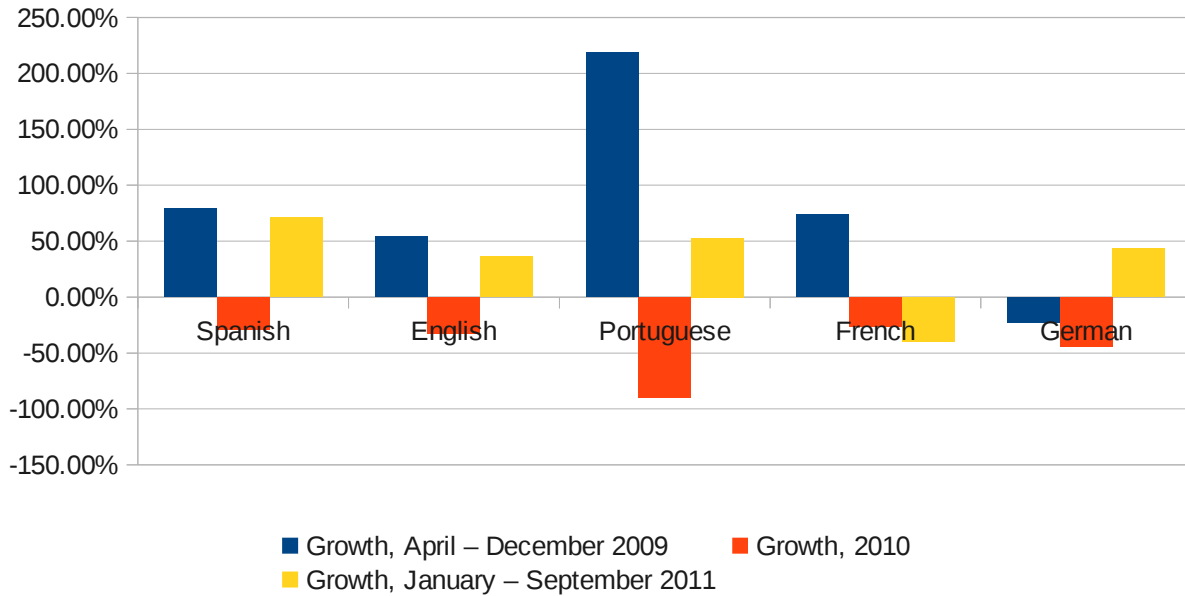


Figure 5.4 Growth of Visits From Top 5 Languages

3.2.3 Traffic Sources

The majority of traffic to the DTR program's website is coming from search engines, with a roughly equal amount coming from referrals and directly. This is displayed in Figure 5.5. The growth rates of visits from each traffic source by year is displayed in Figure 5.6.

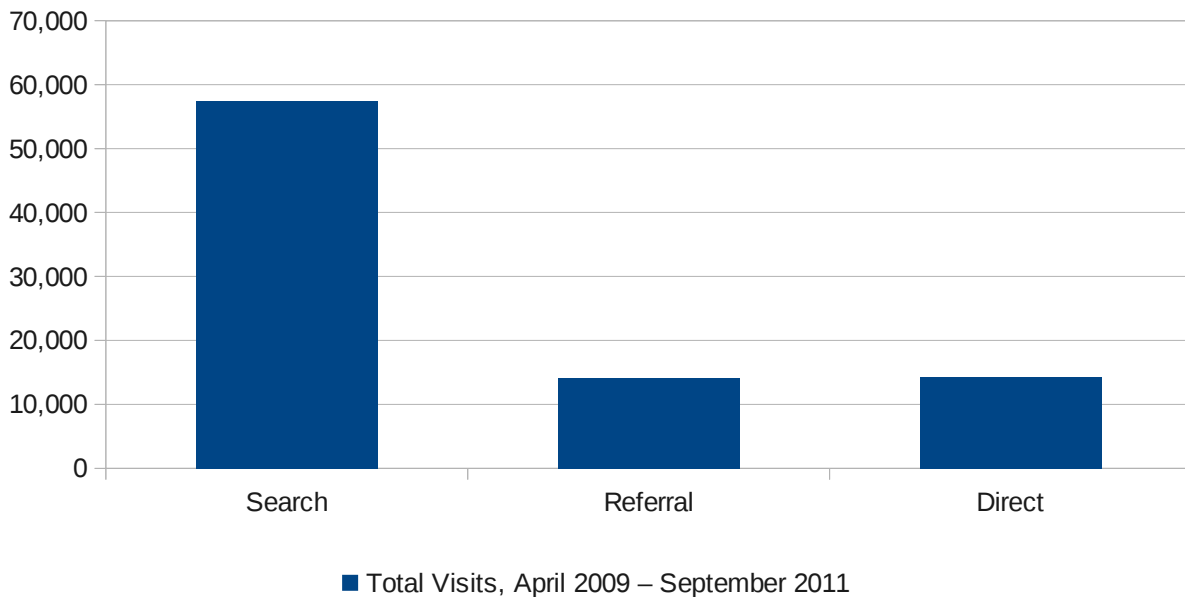


Figure 5.5 Total Visits From Each Traffic Source

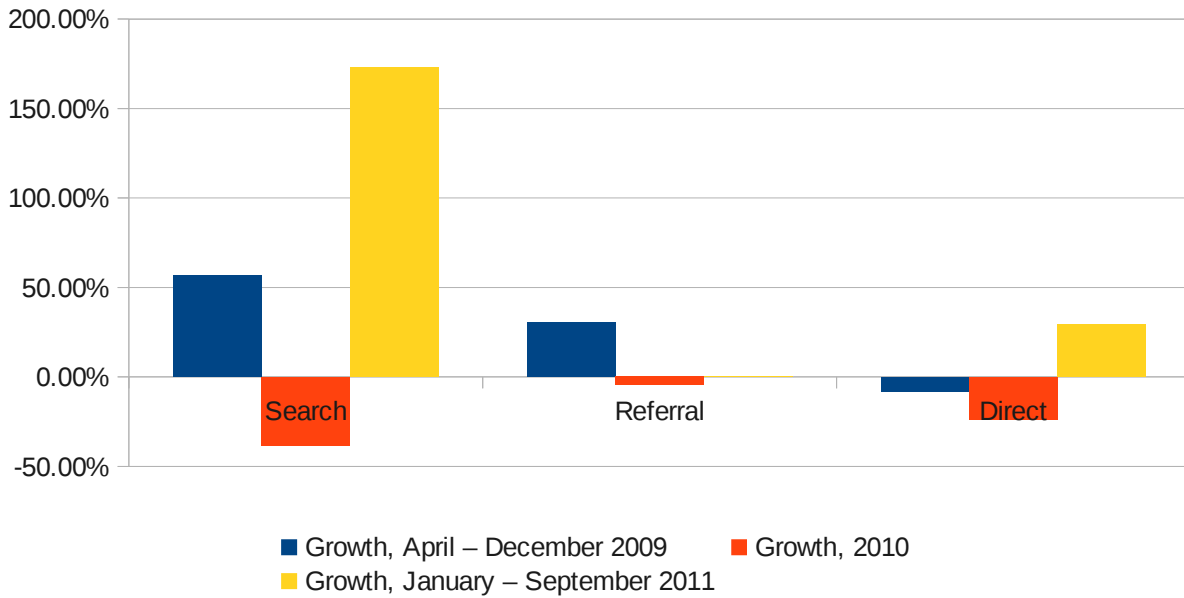


Figure 5.6 Growth of Visits From Each Traffic Source

3.2.4 New and Returning Visitors

Most traffic to the DTR program's website is from new visitors. Returning visitors make less than half of the visits that new visitors make, meaning less than half the visitors to the website return. This data is displayed in Figure 5.7. The growth rates of visits by new and returning visitors by year is displayed in Figure 5.8.

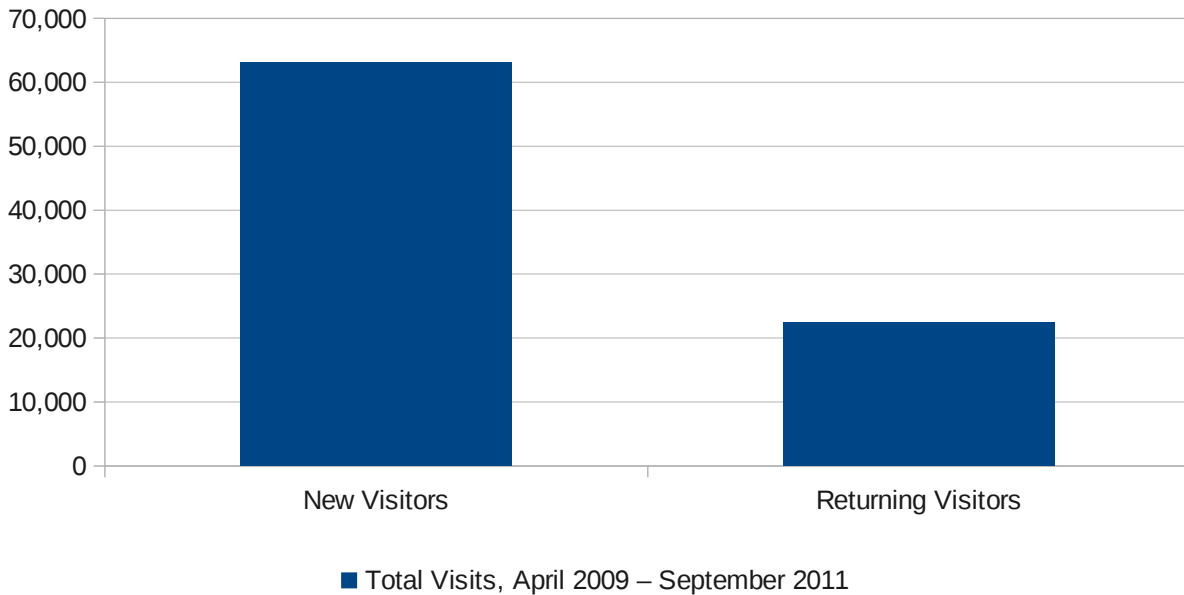


Figure 5.7 Total Visits From New and Returning Visitors

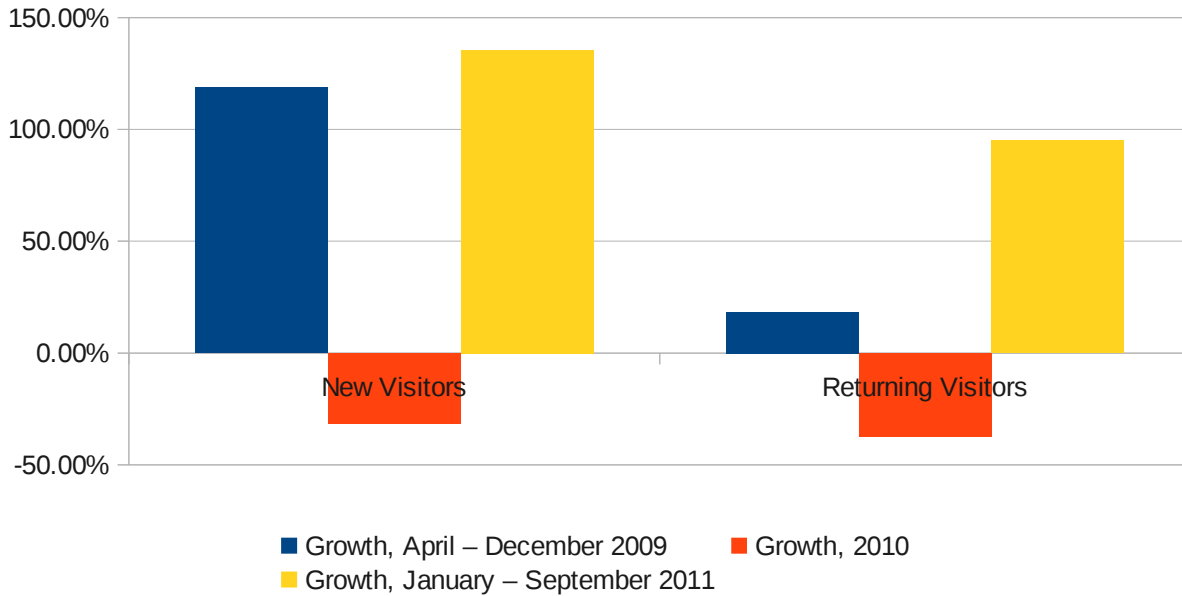


Figure 5.7 Growth of Visits From New and Returning Visitors

3.2.5 Visitor Experience

The number of pages each visitor views before leaving the DTR Program's website is decreasing over time. The average time each visitor remains on the website decreased from 2009 to 2010, and has increased slightly since then. The bounce rate has been steadily increasing since 2009. This data is displayed in Table 5.1.

	April - December 2009	2010	January - September 2011
Number of Pages per Visit	5.00	2.95	2.91
Average Time on Site	8 minutes, 15 seconds	4 minutes 7 seconds	4 minutes 29 seconds
Bounce Rate	42.95%	59.09%	63.30%

Table 5.1 Visitor Experience

3.3 Recommendations

1. Implement the recommendations on increasing web site performance from Section 2. Lower page load times will result in a lower bounce rate and a higher number of pages viewed per visit.
2. Implement the recommendations on improving the design from Section 2. Improved usability will increase the number of pages viewed per visit and the average time spent on the website.
3. Implement the recommendations on improving accessibility from Section 2. Improved

accessibility also increases the amount of information available to search engines, which will increase the frequency your website shows up in search results. This will also improve the search engine results in the search tool on your website.

4 Appendix A: Files an Attacker Uploaded to the Server

<http://www.rimisp.org/FCKeditor/UserFiles/File/5147.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/120956GEDRTA765.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/8108767.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/76496693.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/82491221.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/82833415.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/699283122.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/764902729.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/773140871.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/810930429.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/817210887.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/836520159.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/839976698.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/840351514.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/artifintelligencenok.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/assasinsadminintos.htm>
<http://www.rimisp.org/FCKeditor/UserFiles/File/index.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/maykl-dzhekson-i-dzhoanna.html>
[http://www.rimisp.org/FCKeditor/UserFiles/File/sh\(1\).html](http://www.rimisp.org/FCKeditor/UserFiles/File/sh(1).html)
<http://www.rimisp.org/FCKeditor/UserFiles/File/sh.html>
http://www.rimisp.org/FCKeditor/UserFiles/File/sh_php fla
http://www.rimisp.org/FCKeditor/UserFiles/File/sh_php.xl
<http://www.rimisp.org/FCKeditor/UserFiles/File/templatesplanet.org.html>
<http://www.rimisp.org/FCKeditor/UserFiles/File/test.html>

5 Appendix B: Bug Fixes and Security Updates Available

Apache Web Server

Changes with Apache 2.0.52 – 2.0.64:

http://www.apache.org/dist/httpd/CHANGES_2.0

Changes with Apache 2.0.64 – 2.2.20:

http://www.apache.org/dist/httpd/CHANGES_2.2

PHP Programming Language

Changes with PHP 4.3.9 – 4.4.9:

<http://www.php.net/ChangeLog-4.php>

Changes with 4.4.9 – 5.3.8:

<http://www.php.net/ChangeLog-4.php>

MySQL Database

Changes since 3.2.3:

<http://dev.mysql.com/doc/#manual>

FCKEditor

Changes since 2.3.x:

<http://ckeditor.com/whatsnew/all>

Mailman

Security issues and their resolutions:

[http://osvdb.org/search?
search\[vuln_title\]=mailman&search\[text_type\]=titles](http://osvdb.org/search?search[vuln_title]=mailman&search[text_type]=titles)

phpMyAdmin

Security issues and their resolutions:

[http://osvdb.org/search?
search\[vuln_title\]=phpmyadmin&search\[text_type\]=titles](http://osvdb.org/search?search[vuln_title]=phpmyadmin&search[text_type]=titles)

phpThumb

Changes since 1.2.8:

<http://phpthumb.sourceforge.net/demo/docs/phpthumb.changelog.txt>

Uebimiau

Security issues and their resolutions:

[http://osvdb.org/search?
search\[vuln_title\]=uebimiau&search\[text_type\]=titles](http://osvdb.org/search?search[vuln_title]=uebimiau&search[text_type]=titles)

6 Appendix C: robots.txt File to Place at <http://www.rimisp.org/robots.txt>

```
User-Agent: *
Disallow: /awstats/
Disallow: /estadisticas/
Disallow: /estas/
Disallow: /estas05/
Disallow: /estas06/
Disallow: /fida_old/
Disallow: /login.php
Disallow: /mailing/
Disallow: /mailman/
Disallow: /masivo/
Disallow: /mp/
Disallow: /phpMyAdmin/
Disallow: /phpPgAdmin/
Disallow: /stats06/
Disallow: /stats07/
Disallow: /user_stats/
Disallow: /webmail1/
Disallow: /webpanel/
```

Obviously if some of these directories have been deleted there is no need to list them, and there may be other directories you want to add to this file.

7 Appendix D: .htaccess File to Place at <http://www.rimisp.org/.htaccess>

```
Options -Indexes

php_flag allow_url_fopen off
php_flag display_errors off
php_flag register_globals off

<IfModule mod_rewrite>
    RewriteEngine on
    RewriteCond %{REQUEST_METHOD} ^TRACE
    RewriteRule .* - [F]
</IfModule>
```

8 Appendix E: Accessibility Violations on <http://www.rimisp.org/dtr/>

These results were obtained with the TotalValidator tool mentioned in Appendix H.

WCAG v2 A Errors

E860 - 65 instance(s): If there is no 'alt' attribute, then assistive technologies are not able to identify the image or to convey its purpose to the user

See <http://www.w3.org/TR/WCAG20-TECHS/F65.html>

E866 - 1 instance(s): Use the 'title' attribute to label form controls when the visual design cannot accommodate the label (for example, if there is no text on the screen that can be identified as a label) or where it might be confusing to display a label. User agents, including assistive technology, can speak the 'title' attribute.

See <http://www.w3.org/TR/WCAG20-TECHS/H65.html>

E875 - 1 instance(s): For each <embed> element you should provide either a nested <noembed> element or a <noembed> element immediately following it.

See <http://www.w3.org/TR/WCAG20-TECHS/H46.html>

WCAG v2 AA Errors

E910 - 109 instance(s): Using relative units helps the page to be rendered correctly at different resolutions and allows people with sight difficulties to 'zoom in' to pages to read them.

See <http://www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-scale.html>

WCAG v2 A Errors

P871 - 3 instance(s): Describe the purpose of a link by providing descriptive text as the content of the <a> element. The description lets a user distinguish this link from other links in the Web page and helps the user determine whether to follow the link. The URI of the destination is generally not sufficiently descriptive.

See <http://www.w3.org/TR/WCAG20-TECHS/H30.html>

P886 - 1 instance(s): Although HTML may allow the 'alt' attribute here, it should only be used on image submit buttons. User agent support for this attribute on other types of form controls is not well defined. Other mechanisms are available to label these controls.

See <http://www.w3.org/TR/WCAG20-TECHS/H36.html>

P892 - 8 instance(s): Tags that are being used purely to create a visual presentation effect should not be used. You should use CSS to control layout and presentation so that users and their aids may control it.

See <http://www.w3.org/TR/WCAG20-TECHS/G140.html>

WCAG v2 A Warnings

W860 - 3 instance(s): When using , it is valid to have an empty 'alt' attribute for images that have no content; such as spacers and parts of larger images that have been broken up or used for other layout purposes. You may wish to check that in this case the alt text has not simply been forgotten.

See <http://www.w3.org/TR/WCAG20-TECHS/F30.html>

W864 - 1 instance(s): You should always identify the primary natural language of a document.

See <http://www.w3.org/TR/WCAG20-TECHS/H57.html>

W868 - 2 instance(s): If you have different links with the same link text it can be confusing to the user. So you should either change the link text or add a unique 'title' attribute to each link.


See <http://www.w3.org/TR/UNDERSTANDING-WCAG20/navigation-mechanisms-refs.html>

9 Appendix F: Color Contrast and Luminosity Violations on <http://www.rimisp.org/dtr/>

These results were obtained using the Juicy Studio Accessibility Toolbar mentioned in Appendix H.

Element	Parent Nodes	Sample	Colour	Background	Luminosity Contrast Ratio
A	<ul style="list-style-type: none"> HTML BODY TABLE TBODY TR TD TABLE.fondomenuuper TBODY TR TD 		#ffffff	#ffffff	1:1 (fail)
class: linkaltamenuuper					
A	<ul style="list-style-type: none"> HTML BODY TABLE TBODY TR TD TABLE.fondomenuuper TBODY TR TD 		#ffffff	#ffffff	1:1 (fail)
class: linkaltamenuuper					
id: link1					
A	<ul style="list-style-type: none"> HTML BODY TABLE TBODY TR TD TABLE.fondomenuuper TBODY TR TD 		#ffffff	#ffffff	1:1 (fail)
class: linkaltamenuuper					
id: link4					
A	<ul style="list-style-type: none"> HTML BODY TABLE TBODY TR TD TABLE.fondolineaverdeframeizq P TABLE 	Sample	#ffffff	#81a534	2.85:1 (fail)
class: mainlevel					

Element	Parent Nodes	Sample	Colour	Background	Luminosity Contrast Ratio
	<ul style="list-style-type: none"> • TBODY • TR • TD • TABLE.tablmenu3 • TBODY • TR • TD.mainlevel • DIV.mainlevel 				
A class: mainlevel	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD.fondolineaverdeframeizq • P • TABLE • TBODY • TR • TD • TABLE.tablmenu3 • TBODY • TR • TD.mainlevel • DIV.linkgrismenugeneral 	Sample	#ffffff	#81a534	2.85:1 (fail)
A class: mainlevel	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD.fondolineaverdeframeizq • P • TABLE • TBODY • TR • TD • TABLE.tablmenu3 • TBODY • TR • TD 	Sample	#ffffff	#81a534	2.85:1 (fail)
A class: textoverdetit uloboletin	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR 	Sample	#498b48	#aed16c	2.39:1 (fail)

Element	Parent Nodes	Sample	Colour	Background	Luminosity Contrast Ratio
	<ul style="list-style-type: none"> • TD • TABLE • TBODY • TR • TD.fondolineaverdeframeizq • P • TABLE • TBODY • TR • TD • TABLE.tablaboletin • TBODY • TR • TD • TABLE • TBODY • TR • TD.textoverdetituloboletin 				
A class: linkvermasnar anja	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD 	Sample	#ff7d27	#ffffff	2.56:1 (fail)
TD class: textofechanar anja	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD 	Sample	#ff9900	#ffffff	2.14:1 (fail)

Element	Parent Nodes	Sample	Colour	Background	Luminosity Contrast Ratio
	<ul style="list-style-type: none"> • TABLE • TBODY • TR • TD • TABLE.tablanoticiasnaraja • TBODY • TR • TD • TABLE • TBODY • TR 				
A class: linkvermasnar anja	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE.tablanoticiasnaraja • TBODY • TR • TD • TABLE • TBODY • TR • TD 	Sample	#ff7d27	#ffffff	2.56:1 (fail)
TD class: textofechaazu 1	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD 	Sample	#5a91d9	#ffffff	3.24:1 (AA pass for large text only)

Element	Parent Nodes	Sample	Colour	Background	Luminosity Contrast Ratio
	<ul style="list-style-type: none"> • TD • TABLE.tablanoticiaazul • TBODY • TR • TD • TABLE • TBODY • TR 				
A class: linkvermasazu 1	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE.tablanoticiaazul • TBODY • TR • TD • TABLE • TBODY • TR • TD 	Sample	#5a91d9	#ffffff	3.24:1 (AA pass for large text only)
TD class: textofechaver de	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE.tablanoticiaverde • TBODY 	Sample	#6ba501	#ffffff	3:1 (AA pass for large text only)

Element	Parent Nodes	Sample	Colour	Background	Luminosity Contrast Ratio
	<ul style="list-style-type: none"> • TR • TD • TABLE • TBODY • TR 				
A class: linkvermasverde	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE.tablanoticiaverde • TBODY • TR • TD • TABLE • TBODY • TR • TD 	Sample	#74af01	#ffffff	2.67:1 (fail)
TD class: textoblancoproyectos	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD.fondoazulframeder • TABLE • TBODY • TR 	Sample	#ffffff	#5a91d9	3.24:1 (AA pass for large text only)
FONT	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY 	Sample	#ffffff	#5a91d9	3.24:1 (AA pass for large text only)

Element	Parent Nodes	Sample	Colour	Background	Luminosity Contrast Ratio
	<ul style="list-style-type: none"> • TR • TD.fondoazulframeder • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD.txtarialsmlblanca • SPAN.linknoticiasproyecto • DIV • STRONG 				
STRONG	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD.fondoazulframeder • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD • TABLE • TBODY • TR • TD.txtarialsmlblanca • SPAN.linknoticiasproyecto • P • A • FONT.color=#ffffff 	Sample	#ffffff	#5a91d9	3.24:1 (AA pass for large text only)
DIV	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE.fondonaranjapiepagina • TBODY • TR • TD.txtarialsmlblanca 	Sample	#ffffff	#ff9900	2.14:1 (fail)

Element	Parent Nodes	Sample	Colour	Background	Luminosity Contrast Ratio
STRONG	<ul style="list-style-type: none"> • HTML • BODY • TABLE • TBODY • TR • TD • TABLE.fondonaranjapiepagina • TBODY • TR • TD.txtarialsmlblanca • DIV 	Sample	#ffffff	#ff9900	2.14:1 (fail)

10 Appendix G: Gzip Additions to .htaccess File From Appendix D

```
<IfModule mod_deflate>
    AddOutputFilterByType DEFLATE text/html text/plain text/xml \
    text/css text/javascript application/x-javascript
</IfModule>
```

11 Appendix H: Accessibility Tools

Getting Started: Making a Web Site Accessible

<http://www.w3.org/WAI/gettingstarted/Overview.html.en>

WAVE

<http://wave.webaim.org/>

Total Validator

<http://www.totalvalidator.com/>

Juicy Studio Accessibility Toolbar for Firefox

<https://addons.mozilla.org/en-US/firefox/addon/juicy-studio-accessibility-too/>

12 Glossary

Accessibility: Accessibility refers to making website usable to people with disabilities.

See <http://www.w3.org/WAI/intro/accessibility.php>

Apache Web Server: Apache is the web server used by the Rimisp website.

See <http://httpd.apache.org/>

AWStats: AWStats is a tool that generates web server statistics.

See <http://awstats.sourceforge.net/>

Bounce Rate: Bounce rate is the percentage of users who view a single page on a website and leave.

See http://en.wikipedia.org/wiki/Bounce_rate

Breadcrumbs: Breadcrumbs are a navigation aid used in websites to help users keep track of where they are within a website.

See http://en.wikipedia.org/wiki/Breadcrumb_%28navigation%29

Code Injection Attack: Code injection is an attack where an attacker gets a website to run their own code.

See http://en.wikipedia.org/wiki/Code_injection

CSS: Cascading style sheets (CSS) are used to provide the document presentation of a web page.

See http://en.wikipedia.org/wiki/Cascading_Style_Sheets

Direct Traffic: Traffic that arrives at a website directly, by a user typing the website address into their web browser.

FCKEditor: FCKEditor is a text editor used by the Webpanel software on the Rimisp website to edit content.

See <http://ckeditor.com/>

Gzip compression: Gzip compression is a file compression mechanism that web servers can use to shrink the size of files before sending them to a web browser.

See <http://en.wikipedia.org/wiki/Gzip>

Hashed Passwords: Hashing a password takes a password and runs it through a one-way function to get another value. This value is then stored instead of the password. Since the hash function is one way (it has no inverse function), if the password hash is exposed, the password cannot be obtained.

See <http://net.tutsplus.com/tutorials/php/understanding-hash-functions-and-keeping-passwords-safe/>

.htaccess: .htaccess is a file that may be placed inside a directory to make configuration changes for that directory and its subdirectories when using the Apache web server.

See <http://httpd.apache.org/docs/2.0/howto/htaccess.html>

HTTP TRACE: HTTP Trace is a request that may be sent to a web server. It instructs the web server to send back to the user whatever the user had sent to it. This type of request should be disabled on the web server as it can be exploited to steal user information.

See http://en.wikipedia.org/wiki/HTTP_TRACE#Request_methods

JavaScript: JavaScript is a scripting language used to provide interactive functionality on web pages. On the Rimisp website it is used to show and hide the navigation menus.

See <http://en.wikipedia.org/wiki/JavaScript>

Mailman: Mailman is software used to manage email lists.

See <http://www.list.org/>

Man-in-the-Middle Attack: Man-in-the-middle is an attack where an attacker eavesdrops on a user's web browser traffic. If the user's connection is unencrypted and they are sending sensitive information such as passwords then the attacker can access this information.

See http://en.wikipedia.org/wiki/Man-in-the-middle_attack

mod_deflate: mod_deflate is an Apache module that can provide Gzip compression for files.

See http://httpd.apache.org/docs/2.0/mod/mod_deflate.html

mod_rewrite: mod_rewrite is an Apache module that can rewrite requested URLs.

See http://httpd.apache.org/docs/2.0/mod/mod_rewrite.html

MPanel MPanel is software used to access a MySQL database over the web. This software is insecure and should not be used.

MySQL: MySQL is an open source database. It is used by the Rimisp website to store user-generated content.

See <http://www.mysql.com/>

PHP: PHP is the scripting language used by the Rimisp website to generate its web pages.

See <http://www.php.net/>

phpMyAdmin: phpMyAdmin is software used to access a MySQL database over the web.

See <http://www.phpmyadmin.net/>

phpThumb: phpThumb is software used by Webpanel to create thumbnail images.

See <http://phpthumb.sourceforge.net/>

Referral Traffic: Traffic that arrives at a website by referral, by a user clicking a link on another website.

robots.txt: robots.txt is a file that can be placed at the root of a website to tell web robots, such as search engines, what content they may and may not access.

See <http://www.robotstxt.org/robotstxt.html>

Screen Reader: A screen reader is an application that interprets what is on the computer screen and presents it to the user with a text-to-speech mechanism.

See http://en.wikipedia.org/wiki/Screen_reader

Uebimiau: Uebimiau is the webmail software used on the Rimisp website.

See <http://www.uebimiau.org/>

Web Content Accessibility Guidelines (WCAG): The web content accessibility guidelines explain how to make web content accessible to people with disabilities.

See <http://www.w3.org/WAI/intro/wcag.php>

Webpanel: Webpanel is the content management system used to edit content on the Rimisp website.

See <http://www.webpanel.es/>

Annex 5 -- Terms of Reference for Evaluator

Identify and document the scientific importance and contributions that the research is making for rural development thinking, practice and policy in Latin America and globally including:

- Assess the quantity and quality of contributions made to the state of knowledge about rural development, including the strengths and weaknesses of the integration of gender dimensions into the research and policy recommendations conducted in the Rimisp program (evaluators should consult, inter alia, electronic and formal publications and publications in press);
- Assess the theory of change of the Rimisp program, whether it remains valid and that the work they are doing adds up to reasonable progress in that direction (or not);
- Scientific productivity reached in the Rimisp program in relation to the level of investment made by IDRC in the program and the generation and documentation of evidence;
- The intellectual influence of the program on key research and development organizations active in a regional or specific national context, including (but not necessarily limited to) universities, large NGO's and think tanks and their networks, and some social organizations and movements, as well as multi-lateral organizations (e.g., IICA, BID, CATIE, WB, IFAD, OECD) as relevant; and
- Review policy changes, policies being considered for change/adoption (as identified by Rimisp and its research partners) and any modifications to policy change mechanisms in the region as a result of the Rimisp program.

Annex 6: Biography of Evaluator

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