



## Recommended Reading and Links on Non-Motorised Transportation

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## Preface

Most of the developing cities are striving hard to improve their transport situation. In this course several new transport investments are being made such as implementing rail based mass transit systems, bus based systems and also improving the road conditions and even expansion of the existing road space. In this urgency of improving the urban transport system one particular yet a very important part of the whole urban transport fabric is often overseen or neglected feeling it is not important. This sector is the “Non-Motorised Transport (NMT)”.

A broad definition of NMT would be any kind of a transport system that would not run on a motor. Some such examples are walking, cycling, rickshaws etc. Including these modes is very important should a city aim to be sustainable in terms of transport. In developing cities, there is a huge echelon of the society that is very dependent on the NMT modes mentioned above. The urban poor used walking and cycling as their basic means to access their work. Depriving them of NMT would be snatching their daily bread and pushing them deeper into destitution.

The current document is one of the several efforts of GTZ-Sustainable Urban Transport Project to bring to the policymakers an easy to access list of available material on NMT which can be used in their everyday work. The document aims to list out some influential and informative resources that highlight the importance of NMT in cities and how the existing situation could be improved. The material stated in this document does not serve as a panacea for the developing cities but give the policymakers the advantage of being updated with the developments and existing material on the subject.

Any comments on the material cited in this document can be directed to the SUTP team via email. We sincerely hope that you will benefit by reading this document.

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## GTZ Publications:



### GTZ Sourcebook Module 3D (2003): Preserving and Expanding the Role of Non-motorised Transport (Walter Hook, ITDP)

[http://www.sutp.org/index.php?option=com\\_docman&task=cat\\_view&gid=31&Itemid=54&lang=](http://www.sutp.org/index.php?option=com_docman&task=cat_view&gid=31&Itemid=54&lang=)

This module starts by outlining the benefits of non-motorised transport (NMT). It considers the different forms of regulation to which NMT is subjected, and describes the non-motorised planning process and the steps involved, drawing from an example pilot study conducted in Surabaya. Successful measures in cities such as Bogotá, and in European cities, is described with a view to application in developing cities.

### GTZ Sourcebook Module 3E (2005): Car-free Development (Lloyd Wright)



[http://www.sutp.org/index.php?option=com\\_docman&task=cat\\_view&gid=31&Itemid=54&lang=](http://www.sutp.org/index.php?option=com_docman&task=cat_view&gid=31&Itemid=54&lang=)

Automobile dependency and appalling living conditions are the most common indicators of developing cities. This need not be the case in every developing city if it is planned for the people rather than for personal mobility. This module draws experience from various examples that have ventured into finding an alternative means of transport and have succeeded in creating cities for people. The module demonstrates to decision makers that car oriented cities are not the only way forward in solving traffic problems in their city. Further, the module gives successful examples from all over the world on creating liveable and carfree public spaces,

essential aspects of a liveable city.

### GTZ, I-Ce (2009), Cycling-Inclusive Policy Development: A Handbook



[http://www.sutp.org/index.php?option=com\\_docman&task=cat\\_view&gid=31&Itemid=54&lang=](http://www.sutp.org/index.php?option=com_docman&task=cat_view&gid=31&Itemid=54&lang=)

GTZ SUTP and the Interface for Cycling Expertise (I-Ce) have joined efforts in the development of a training document entitled "Cycling-inclusive Policy Development: A Handbook". It has been written by 12 authors who are experts in different fields of cycling-inclusive development. This handbook provides detailed information on how to develop cycling-friendly policies and facilities. It can help planners, engineers, community leaders or advocates to enrich their own

perspectives on what kind of places they want cities to be. The publication is also part of Sustainable Urban Mobility in Asia (SUMA) initiative, of which GTZ and I-Ce are partners.

## **Other Useful Publications:**

**Cervero, Robert, Sarmiento, Olga L., Jacoby, Enrique, Gomez, Luis Fernando and Neiman, Andrea (2009) 'Influences of Built Environments on Walking and Cycling: Lessons from Bogotá', International Journal of Sustainable Transportation, 3: 4, 203 — 226**

<http://dx.doi.org/10.1080/15568310802178314>

Bogota, Colombia, is well known for its sustainable urban transport systems, including an extensive network of bike lanes and set-aside street space for recreational cyclists and pedestrians on Sundays and holidays, called Ciclovía (“cycleway”). This paper examines how such facilities along with other attributes of the built environment—urban densities, land-use mixes, accessibility, and proximity to transit—are associated with walking and cycling behaviour as well as Ciclovía participation. We find that whereas road facility designs, like street density, connectivity, and proximity to Ciclovía lanes, are associated with physical activity, other attributes of the built environment, like density and land-use mixtures, are not. This is likely because most neighbourhoods in built-up sections of Bogotá evolved during a time when non-automobile travel reigned supreme, meaning they are uniformly compact, mixed in their land-use composition, and have comparable levels of transport accessibility. Thus facility designs are what sway non-motorised travel, not generic land-use attributes of neighbourhoods.

**Dan Burden (2003), How Can I Find and Help Build a Walkable Community?, Walkable Communities**

<http://www.walkable.org/assets/downloads/How%20Can%20I%20Find%20and%20Help%20Build%20a%20Walkable%20Community.pdf>

This is one of the most important and necessary questions anyone should ask before settling down in a permanent location. Many corporate leaders looking to expand or move locations are now looking for towns offering appropriate start up breaks, but also where they and their middle managers want to live many years, raise a family and retire. This document cites 12 important aspects that will help in creating walkable communities.

**Fietsberaad (2008), Cycling in the Netherlands, Ministry of Transport, Public Works and Water Management, The Netherlands**

<http://www.fietsberaad.nl/library/repository/bestanden/CyclingintheNetherlands2009.pdf>

The brochure offers compact information about a broad range of subjects, viz. bicycle use, traffic safety, motives for cycling, why is cycling so successful in the Netherlands, ways to promote bicycle use, how to find more information?

It also gives information on aspects such as the various groups who cycle in the Netherlands, success and fail factors for bicycle use, arguments pro cycling etc.,

**Gwala, S (2007), 'Urban non-motorised transport (NMT): A Critical look at the development of Urban NMT Policy and planning mechanisms in South Africa from 1996 - 2006', Paper presented to the 26th Annual Southern African Transport Conference, South Africa, 9 - 12 July 2007. 10p.**

<http://www.up.ac.za/dspace/bitstream/2263/5953/1/017.pdf>

With problems of congestion and pollution in urban areas perhaps greater work is needed in terms of both infrastructure and policy alignment when it comes to urban non-motorised transport (NMT). The objective of reviewing transport planning and policy mechanisms that prevailed during 1996 and 2006 is to assess whether existing planning and policy mechanisms; (1) allow for the integration of NMT into the transport system and into infrastructure and land use planning; (2) the mechanisms facilitate the evaluation of policy to improve NMT; (3) allow for the development of road design and maintenance standards that recognise NMT as a traffic component and thereby allowing for the reduction of pedestrian and cyclist fatalities.

**Hagen, J (2009), Curitiba: Urban Planning Process and Greening, Walk 21 Conference, 2009.**

<http://www.walk21.com/papers/JONASHAGENCuritibaGreeningsmall.pdf>

Describes evolution of urban growth in Curitiba, and how they plan to add 3 million residents, guarantee quality of life and preserve green space. Talks about urban planning processes in Curitiba over the past 60 years, as well as environment, historical preservation, and public transport. Discusses urban planning tools, the Green Line - Metropolitan axis of development - and the multimodal master plan.

**Heminger, S (2009), Climate and Transportation, Walk 21 Conference, 2009.**

[http://www.walk21.com/papers/ClimateTransportation-ChangeComing\\_10-8-09sh.pdf](http://www.walk21.com/papers/ClimateTransportation-ChangeComing_10-8-09sh.pdf)

Walkable cities can play a crucial role in halting climate change. Steve Heminger, the director of the San Francisco Bay Area Metropolitan Planning Organization, discusses how walking fits into California's new climate change and planning mandate, which creates regional targets for greenhouse gas emissions tied to land use.

**I-Ce (2000), The Significance Of Non-Motorised Transport For Developing Countries**

[http://siteresources.worldbank.org/inturbantransport/resources/non\\_motor\\_i-ce.pdf](http://siteresources.worldbank.org/inturbantransport/resources/non_motor_i-ce.pdf)

A study on the effectiveness of non-motorised transport in relation to Economic growth, reduction of poverty and quality of life in urban areas And on the applicability of arrangements developed in the Netherlands.

**ITSP (2010), Public Policies for Pedestrian and Bicyclist Safety and Mobility: An Implementation Project of the Pedestrian and Bicyclist Safety and Mobility International Scan, International Technology Scanning Program**

<http://international.fhwa.dot.gov/pubs/pl10028/pl10028.pdf>

A key element of livable communities is a safe and convenient place for people to bike and walk as part of their daily activities. The purpose of this report is to identify and provide examples of effective policies and implementing programs that support pedestrian and bicyclist safety and mobility. The examples are from cities in the United States as well as from other countries.

**Joewono, T, Kubota, H (2005), The Characteristics of Paratransit and Non-Motorized Transport In Bandung, Indonesia, Journal of the Eastern Asia Society for Transportation Studies, Vol. 6, pp. 262 - 277, 2005**

[http://www.easts.info/on-line/journal\\_06/262.pdf](http://www.easts.info/on-line/journal_06/262.pdf)

This paper intends to explore the characteristics of paratransit and NMT in Bandung. Operational, financial, perception, and users' ability and willingness to pay data were collected using survey. There is significance difference in becak operational characteristics between 1984 and 2001. Analysis shows that NMT provides mobility for women, student, low-income user, and job opportunity for people with limited skill and education, including exercise. Survey shows that NMT still accepted by community. Paratransit is 61.24% of total public transportation in Bandung. The minimum load factor is 29.17% and the maximum is 82.34%. 70.7% of paratransit user answers that the service quality of paratransit is good enough and 53% respondent says that tariff is suitable with the service quality. User ability and willingness has been analyzed according to service quality, trip purpose, user expenses, and fare perception.

**Litman, T (2010), Non-Motorised Transport Planning**

<http://www.vtpi.org/tm/tm25.htm>

Along with his immense material on various transport issues and transport demand management approaches, Todd Litman describes the process of NMT planning and the activities that would encourage walking and cycling in various cities.

**McNeil, N (2010), Bikeability and the Twenty-Minute Neighborhood: How Infrastructure and Destinations Influence Bicycle Accessibility, Portland State University**

[http://www.ibpi.usp.pdx.edu/media/McNeil\\_Bikeability\\_June2010.pdf](http://www.ibpi.usp.pdx.edu/media/McNeil_Bikeability_June2010.pdf)

The Initiative for Bicycle and Pedestrian Innovation at Portland State University has released a report that explores a methodology for assessing a neighbourhood's bikeability based on its mix of infrastructure and destinations.

**National Centre for Bicycling and Walking (2010), Increasing Physical Activity Through Community Design: A Guide for Public Health Practitioners and Livable Community Advocates**

[http://www.activelivingresources.org/assets/2010IPA\\_full.pdf](http://www.activelivingresources.org/assets/2010IPA_full.pdf)

The Active Living Resource Center has released an updated version of its physical activity guide that explores ways to enhance walking and bicycling opportunities within communities.

**Nelson, A; Allen, D (1997), "If You Build Them, Commuters Will Use Them; Cross-Sectional Analysis Of Commuters And Bicycle Facilities," Transportation Research Record 1578, TRB (www.trb.org), Pp. 79-83.**

<http://trb.metapress.com/content/5573wq3237qh4g01/>

Conventional wisdom suggests that if bicycle pathways are provided, people will use them. This assertion is based on a combination of anecdotes, a few case studies, and mostly wishful thinking. Until now, there have been no cross-sectional studies of the association between bicycle pathway supply and commuting by bicycle that control for a variety of factors. Cross-sectional analysis, controlling for a variety of extraneous factors, can help to attribute differences in bicycle commuting to the overall supply of pathways. Cross-sectional data are applied here to 18 U. S. cities to help fill this gap in research. After considering such factors as weather, terrain, and number of college students, a positive association was found between miles of bicycle pathways per 100, 000 residents and the percentage of commuters using bicycles. It is speculated that one problem with shifting the mode of commuting away from automobiles may simply be an inadequate supply of bicycle facilities. Although this work is the first of its kind, more systematic research is needed to confirm its findings.

**Pendakur, S (2005), Non-Motorised Transport in African Cities: Lessons from Experiences in Kenya and Tanzania**

<http://www4.worldbank.org/afr/ssatp/Resources/SSATP-WorkingPapers/ssatpwp80.pdf>

This document published by the Sub-Saharan Africa Transport Policy Program (SSATP) outlines the situation on non-motorised transport in African cities and also informs of the benefits and costs of NMT projects in Kenya. It also gives statistics on urban mobility in some African cities.

**Pretorius, L. and Bester, C.J. (2004), A Proposed Strategic Plan For Non-Motorised Transport (NMT) For Cape Town**

[http://www.gtkp.com/uploads/20091129-154428-4742-pretorius\\_proposed%202004%209.pdf](http://www.gtkp.com/uploads/20091129-154428-4742-pretorius_proposed%202004%209.pdf)

This paper sets out to describe the issues relating to NMT in the city with specific reference to walking and cycling modes. It further outlines a proposed policy response and strategies to address NMT and describes certain key projects proposed to launch and promote the NMT strategy.

**Replege, M (no year), Non-Motorized Vehicles in Asia: Lessons for Sustainable Transport Planning and Policy**

[http://www.edf.org/documents/2293\\_nonmotorizedvehiclesasia.pdf](http://www.edf.org/documents/2293_nonmotorizedvehiclesasia.pdf)

This paper provides an overview of the current use of non-motorized vehicles (NMVs) in Asian cities, the characteristics of NMVs and facilities that serve them, and policies that influence their use. The paper identifies conditions under which NMV use should be encouraged for urban transport, obstacles to the development of NMVs, and identifies desirable steps that might be taken to develop a non-motorized transport strategy for a city or region, in Asia and other parts of the world.

**Russo, R (2009), Broadway Re-design, New York, Walk 21 Conference, 2009**

<http://www.walk21.com/papers/RussoBroadway%20Re-Design%20for%20Walk%2021%2010-7-09%20-%20for%20web.pdf>

This document describes the transformation of Broadway's iconic places into pedestrian spaces. Discusses how traffic management issues, safety problems, public transit and economic vitality were improved through the pedestrian and bicycle initiatives along Broadway. Includes monitoring and evaluation data.

**Tiwari, G (no year), Towards A Sustainable Urban Transport System: Planning For Non-Motorized Vehicles In Cities**

<http://www.iitd.ac.in/tripp/publications/paper/planning/planning%20for%20nmv%20unescap.pdf>

This paper shows that pedestrians, cyclists and Non-motorized rickshaws are the most critical elements in mixed traffic. If infrastructure design does not meet the requirements of these three all modes of transport operate in sub-optimal conditions. It is possible to redesign existing roads to provide a safe and convenient environment for non-motorized modes of transport. This also results in the improved efficiency of public transport vehicles and an enhanced capacity of the transport corridor when measured in number of passengers per hour per lane.

**Tolley, R (1997), The Greening of Urban Transport: Planning for Walking and Cycling in Western Cities, John Wiley and Sons, ISBN 0471969931**

<http://www.staffs.ac.uk/schools/sciences/geography/cast/castpages/publications.html>

The second edition of The Greening of Urban Transport presents the only comprehensive analysis of green mode planning. Examining theory, principles and real strategies, it presents a thorough review of how we can improve the quality of our life in our cities. This is the core text on environmentally sensitive transport planning in Western cities. It provides a primer on the "green modes" - walking and cycling - and describes the theory and illustrates the practice in some 41 contributions by 37 authors. The new edition was necessary to take into account the many changes and developments in planning practice, some of which were generated by the first edition of this book.



### **TRB (2006), Pedestrians: Research Program Statements**

<http://www.trb.org/publications/circulars/ec084.pdf>

TRB Research Circular E-C084 presents the top 16 pedestrian research problem statements, prioritized from a list of approximately 80 research problem statements by TRB's Technical Activities Division Committee on Pedestrians.

### **VTI (2010), Methods for Estimating Pedestrian and Cycle Traffic**

[http://www.vti.se/templates/Report\\_2797.aspx?reportid=14593](http://www.vti.se/templates/Report_2797.aspx?reportid=14593)

The Swedish National Road and Transport Research Institute (VTI) has released a report that examines the proportion of total travel represented by pedestrian and cycle traffic in Swedish towns. The report is written in Swedish with an English summary.

### **VTI (2010), Evaluation of the Effectiveness of Enhanced Information at Pedestrian Crossings**

[http://www.vti.se/templates/Report\\_2797.aspx?reportid=14591](http://www.vti.se/templates/Report_2797.aspx?reportid=14591)

The Swedish National Road and Transport Research Institute (VTI) has released a report that explores enhanced information at pedestrian crossings and how effective this information is in increasing the safety and security of pedestrians. The report is written in Swedish with an English summary.

### **Whitelegg J.; Williams N. (2000), Non-motorised Transport and Sustainable Development: evidence from Calcutta, Local Environment, Volume 5, Number 1, 1 February 2000 , pp. 7-18(12)**

<http://www.ingentaconnect.com/content/routledg/cloe/2000/00000005/00000001/art0002>

The important role that non-motorised transport plays in urban sustainability is discussed with particular reference to the developing world and to the links between environmental and poverty issues. The significance of non-motorised transport in terms of reduced pollution, income maintenance for the poor and providing transport for vulnerable groups is stressed and placed within the general context of sustainable development. More specifically, evidence is presented for rickshaws in Calcutta, which demonstrates the vital role that non-motorised transport must play if sustainable development objectives are to be met. This evidence indicates that if rickshaws were to disappear from Calcutta's streets there would not only be significant increases in air pollution but also a substantial increase in the numbers of people living in poverty.

**World Bank (2002), Cities on the Move, Chapter 9: The Role of Non-motorised Transport**

<http://siteresources.worldbank.org/INTURBANTRANSPORT/Resources/chapter9.pdf>

This document produced by the World Bank cites on the various developments in cities and the chapter quoted here emphasises the importance of non-motorised transport in developing cities. The document draws light on issues like women and bicycling, which echelons of the society are dependent on NMT and the reasons for encouraging NMT in cities.

## **Weblinks:**

### **Bicycling Empowerment Network (BEN) Namibia:**

<http://benbikes.org.za/namibia/index.html>

BEN Namibia aims to empower disadvantaged Namibians through provision of sustainable transport and bicycle-related income generation opportunities.

### **Bikes Belong Coalition:** <http://bikesbelong.org/>

The Bikes Belong Coalition was formed in 1999 as the national coalition of bicycle retailers and suppliers working to put more people on bikes more often. U.S. bicycle companies recognized that they could accomplish more for bicycling by working together than by working independently.

### **Car-free Living:** <http://www.autofrei-wohnen.de/homeEngl.html>

This German site offers various resources and example of living in neighbourhoods with car restriction.

### **Copenhagenize:** <http://www.copenhagenize.com/>

Each and every day roughly 500,000 citizens choose the bicycle in Greater Copenhagen. This blog highlights who they are, why they do and how it was made possible.

Forty years ago Copenhagen was just as car-clogged as anywhere else but now 37% of commuters crossing the city boundary ride bicycles each day. That number rises to 55% in the city proper. Copenhagenizing is possible anywhere.

### **Cycling Promotion Fund (CFP):** <http://www.cyclingpromotion.com.au>

An Australian agency that aims to promote bicycling in Australia.

### **European Mobility Week:** <http://www.mobilityweek.eu/>

The European Mobility Week is an awareness raising campaign aiming at sensibilising citizens to the use of public transport, cycling, walking and at encouraging European cities to promote these modes of transport and to invest in the new necessary infrastructures.

### **Global Alliance for EcoMobility:** <http://www.ecomobility.org>

The Global Alliance for EcoMobility mission is to reduce citizens' dependency on private motorized vehicles, especially in urban mobility, and raise the profile of the practice of 'EcoMobility' – self-propelled forms of transport like walking, cycling, and skating, combined with the use of public transports.

**Institute for Transportation and Development Policy (ITDP):** <http://www.itdp.org>

ITDP promotes sustainable transport activities in various cities around the world and also assists the local governments in planning and implementing sustainable transport projects.

**International Bicycle Fund:** <http://www.ibike.org/>

A non-governmental, nonprofit, advocacy organization, providing information and resources promoting sustainable transport and international understanding to make this planet a healthier and happier place to live. Major areas of activity are non-motorized urban planning, economic development, bike safety education, responsible travel and bicycle tourism, and cross-cultural, educational programs.

**International Pedestrian Lexicon:** <http://user.itl.net/~wordcraf/lexicon.html>

A pedestrian-related glossary of terms

**Living Streets:** <http://www.livingstreets.org.uk/>

Living Streets is the national charity that stands up for pedestrians. With its supporters they work to create safe, attractive and enjoyable streets, where people want to walk.

**National Center for Bicycling & Walking (NCBW):** <http://www.bikewalk.org>

The National Center for Bicycling & Walking (NCBW) is the major program of the Bicycle Federation of America, a national, nonprofit corporation established in 1977. The aim of the NCBW's program is to change the way communities are planned, designed and managed to ensure that people of all ages and abilities can walk and bike easily, safely and regularly.

**Pan Africa Bicycle Information Network (PABIN):**  
<http://www.ibike.org/pabin/index.htm>

This network aims to improve opportunities for bicycle transport and low-cost mobility to improve productivity, the quality of life and the environment in Africa.

**Pedestrian and Bicycle Information Centre:** <http://www.bicyclinginfo.org/>

The Pedestrian and Bicycle Information Center (PBIC) is a national clearinghouse for information about health and safety, engineering, advocacy, education, enforcement, access, and mobility for pedestrians (including transit users) and bicyclists. The PBIC serves anyone interested in pedestrian and bicycle issues, including planners, engineers, private citizens, advocates, educators, police enforcement, and the health community.

**Project for Public Spaces:** <http://www.pps.org/>

Project for Public Spaces (PPS) is a non-profit planning, design and educational organization dedicated to helping people create and sustain public spaces that build stronger communities.

**Re-Cycle:** <http://www.re-cycle.org/>

Re-Cycle's mission is to collect second hand bicycles and ship them to Africa. Our partners distribute bikes and teach riders the skills to repair and maintain them. Our bikes also help health/AIDS workers reach remote villages and even provide an ambulance service in remote Namibia.

**Sustainable Planning & Innovation for biCYCLES:** <http://spicycles.velo.info/>

Benchmark your city, produce city comparison reports and benefit from all the advantages

**Velo-City Global 2010:** <http://www.welcomehome.dk/Default.aspx?ID=709>

Velo-city Global 2010 was organised by The European Cyclists' Federation, The City of Frederiksberg and The City of Copenhagen.

Velo-city Global 2010 brought for the first time in the history of velo-city urban planners, politicians, NGOs and bicycle professionals from around the world in the city of Copenhagen to discuss the potential and challenges of cycling.

**Velo.Info:** <http://www.velo.info/>

Velo.Info provides cities with expert knowledge, international experience, and peer support. Velo.Info brings together knowledge and expertise on cycling throughout Europe. Velo.Info combines international expertise with local knowledge.

**Victoria Transport Policy Institute (VTPI):** <http://www.vtpi.org>

The Victoria Transport Policy Institute is an independent research organization dedicated to developing innovative and practical solutions to transportation problems. It provides a variety of resources available free at the website to help improve transportation planning and policy analysis.

**World Carfree Network:** <http://www.worldcarfree.net>

World Carfree Network brings together organisations and individuals dedicated to promoting alternatives to car dependence and automobile-based planning at the international level and working to reduce the human impact on the natural environment while improving the quality of life for all.

The idea is to build a decentralised, structured network in which anyone agreeing with the goals of the network can take an active part. The network aims to provide a

voice for its members at the international level, and to create a framework for its members' international projects.

## **GTZ – Sustainable Urban Transport Project (SUTP)**

Based on more than 25 years of practical experiences, GTZ hosts the “Sustainable Transport: A Sourcebook for Policy-Makers in Developing Cities” ([www.sutp.org](http://www.sutp.org)) with a wealth of information and knowledge on appropriate solutions, inter alia on tackling climate change in the transport sector. Through training and advisory services, decision makers in the transport sector are better informed about transport options, mode choices, mobility management and transport related emissions and their impact on our climate. This may lead to improved urban transport systems, less traffic and better alternatives to individual motorized transport modes.

This flagship publication compiles most of the international literature on the relevant subject and provides access to numerous other resources. It is complemented by training courses targeted to policymakers, planners or engineers in cities, regional entities and federal governments.

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