# swiss academies of arts and sciences

# swiss academies factsheets

www.swiss-academies.ch

# Switzerland and the Commodities Trade Taking Stock and Looking Ahead

Switzerland has recently emerged as one of the world's most important hubs in the global trade of commodities. But its rise has been accompanied by concerns about transparency, appropriate regulation, and risks to resource-exporting developing countries. A growing body of evidence points not only to beneficial, but also to harmful effects of commodities trading and extraction on resource-exporting poor countries. These include risks of undiversified economic development, political corruption, environmental damage, and human rights violations. However, there is a profound lack of scientific research on the role of major commodity hubs like Switzerland, where vital commodities such as oil, metals, and grains are traded and extractive companies are headquartered. Could policy changes in Switzerland make the commodity sector more sustainable and its impact more mutually beneficial? This factsheet outlines key challenges, knowledge gaps, and research questions centring on Switzerland's role and potential responsibility as a leading commodity hub. It concludes with suggestions of possible avenues for future research and policy.

### **Crises bring scrutiny**

For years, researchers have highlighted the worrisome tendency of many commodity-producing countries to remain poor and indebted – victims of a posited "resource curse".<sup>1</sup>Some have stressed the need for studies on systemic causes, including insufficient global rules and rich-country policies (e.g. on taxation of multinationals) that help to shift commodity revenues away from developing countries. But these issues were not given priority on the political agenda of industrialized nations and failed to attract major public attention.

Since 2008, however, the widely felt economic and financial crises have amplified public concerns about issues of global inequality, debt, profit shifting, financial secrecy, etc. Calls for relevant policy reforms have mounted in industrialized countries, echoing similar (earlier) appeals in developing countries. Crucially, political leaders of some of the world's most powerful nations suddenly faced pressure to tackle *their own* problems of domestic debt and lost revenues – lost also to offshore financial centres. Growing scrutiny of global finance and banking has expanded to include other sectors, such as commodities trading<sup>2</sup>, seen as opaque and possibly profiting unfairly from tax avoidance and insufficient regulations.

### A rising Swiss hub

Owing in part to its stability, status as a financial centre, and even its time zone, Switzerland has emerged as a leading hub in the global trade of commodities. The available figures illustrate its rapid rise and significant position. A small land-locked country far from most physical trading routes, Switzerland now accounts for as much as one-third of the global *transit trade* in vital commodities such as oil, metals, and agricultural goods (see Figure 1).<sup>3</sup> Traders here typically buy commodities from suppliers abroad and resell them to clients who are also abroad, meaning the goods never touch Swiss soil. Net receipts from transit trading in Switzerland grew tenfold between 2003 and 2011, from CHF 2 billion to CHF 20 billion.<sup>4</sup> In 2010, transit

trading replaced Swiss banks' financial services as the country's top services export, and its share of Swiss GDP (over 3 %) eclipsed that of tourism.<sup>5</sup> According to the newly formed Swiss Trading and Shipping Association, more than 500 companies and 10,000 employees are involved in commodities trading<sup>6</sup>, most of them located in Geneva, Zug, and Lugano.<sup>7</sup>

Looking at specific commodities sharpens the picture of a major Swiss hub. One-third of globally traded oil is bought and sold in Geneva<sup>8</sup>, including up to 25% of oil from state-owned African firms.<sup>9</sup> Two-thirds of the international trade in base metals (e.g. zinc, copper, aluminium) is handled in Switzerland<sup>10</sup>, with companies headquartered in Zug and Geneva also heavily involved in extraction. Trade in *precious metals* features prominently as well, a key difference being that they often physically enter the country and are handled by Swiss customs. According to one estimate<sup>11</sup>, 70 % of worldwide gold is refined in Switzerland<sup>12</sup>, particularly Ticino. Finally, so-called soft commodities show a similar trend: two-thirds of the international cereals trade, over half the coffee trade, half the sugar trade, and the bulk of the cotton trade are handled by Swissbased firms.<sup>13</sup> Unsurprisingly, Switzerland is also a major importer of cocoa for its famed chocolate, but transit trade data on cocoa are hard to find.<sup>14</sup>

### Other side of commodities trade

These figures suggest a major Swiss success story. However, research shows that the trade of commodities is also associated with risks including illicit financial flows, environmental damage, human rights violations, and lost opportunities for poor countries in which the (often finite) commodities are extracted (CDE/WTI/IWE 2015). The challenges are not limited to Switzerland. But its role as a leading trading hub and home to commodity companies heightens its responsibility in the eyes of many observers. Research is essential to better understand Switzerland's role, related risks, and appropriate policy responses. Left unaddressed, the risks may negatively impact the country's reputation in international business, foreign policy (particularly development cooperation policy and global environmental policy), and among segments of its own population.

#### Box 1

## Literature review on commodity sector shows need for studies on "home" and "host" countries, cross-border connections, and policy measures

The challenges and research needs summarized here stem from a detailed commodity-sector literature review, from the perspective of sustainable development, conducted by researchers at the Centre for Development and Environment (CDE) and the World Trade Institute (WTI) of the University of Bern, and the Institute for Business Ethics (IWE) of the University of St. Gallen. The review calls for additional studies on the role of "home" countries like Switzerland, where commodity traders and extractive companies are headquartered, and "host" countries in the developing world, where fossil fuels and minerals are extracted and food, feed, and fibres are grown. Studies are especially needed on the impacts in both home and host countries, on the *relations between* them, and on the policy measures available in either group of countries. This factsheet emphasizes the pressing knowledge gaps and policy issues for Switzerland and other home countries. A subsequent fact sheet will summarize the key issues for host countries.

The original full-length review (CDE/WTI/IWE 2015) is available at: http://www.kfpe.ch/WorkingPaper-commodity

### Figure 1

### Market shares of the world's main trading hubs according to commodities

Market shares of the world's main trading hubs for crucial commodities: Switzerland's dominance stands out.



Source: GTSA (adapted), in: Swiss Federal Council. 2013. Background Report: Commodities – Report of the Interdepartmental Platform on Commodities to the Federal Council. Bern, Switzerland: Swiss Confederation.

### Challenges and pressing knowledge gaps

Our review of the existing literature (see Box 1) indicates a clear need for in-depth studies of the Swiss commodity hub. Some of the most critical issues and knowledge gaps are summarized below.

Illicit financial flows linked to commodity trading are a major challenge that demands greater analysis with a view to prevention and policy coherence.<sup>15</sup> There is no agreement on the estimated scale of the problem. Of prime concern are possible commodity-related practices of *trade mispricing*. This involves transactions in which two parties – e.g. a Europe-based multinational and an African subsidiary or a state-owned firm - trade a commodity but manipulate its price (in collusion or one-sidedly). This may be done to avoid higher taxes at the point of export, or to hide profits elsewhere along the value chain. It typically involves manipulation of invoices or other accounting documentation. Estimates of the overall costs of trade mispricing to developing countries vary significantly; Global Financial Integrity has estimated that it costs developing countries as much as USD 106 billion annually in lost tax revenues.<sup>16</sup> Trade mispricing between related parties, such as subsidiaries of a multinational group, is often called *transfer mispricing* or "abusive transfer pricing". Notably, transfer pricing is commonplace<sup>17</sup> and generally considered acceptable if intra-group trades are handled at fair market prices ("arm's length principle").18 But is Switzerland's current regulatory framework sufficient to enable detection and prevention of abusive forms of transfer pricing or, more broadly, trade mispricing? Further, are fair market prices even possible if a small number of companies dominate individual commodities and entire value chains? Additional research could shed light on these critical questions.

*Tax evasion and avoidance* are another major concern: the Organisation for Economic Co-operation and Development (OECD) has noted multinationals' tendency to disconnect the location of business activities, such as mining, from the location where the profits from these activities are taxed.<sup>19</sup> The biggest commodity players are increasingly *vertically integrated* companies involved not only

4.708 6.068 <b>IDGH</b> 0.650 807.5 540.5	3.5030 8.7340 0.6830 <b>EJ+EO</b> 57.030 5.7540 0.7540 86.560	8.060 7.580 6.806 5.084 <b>IDGH</b> 0.650 807.5 0.607 540.5	6.537 5.476 47.06 4.708 6.068 IDGH 807.5 540.5 0.650	87 6000 38 8580 70 6500 75 7050 34 7050 LSM/VH 2470540 47 0540 47 0540 47 0540	0.350 507 176 176 106 106 106 106 106 106 106 106 106 10		100000 E0000	SUNS BEFAULT
EFF 405.4 054-0 767.6 760.7 5.407	-WEF 8.6350 8.7860 5-3236 6.3610 6.2530	EFF 405.4 -054.0 760.7	EFF 405.4 7970 787.6 787.6 150.7 5.407	EWP 16.0680 20.6500 1807.50 62.1040	EFF 405.4 004.0 740.7	-WEY 6.3610 2.2600 4.8670	M.	
								1

in trading, but also in extraction, shipping, and refining of raw materials.<sup>20</sup> They have a vested interest in (artificially) shifting the profits of each activity to low-tax jurisdictions.<sup>21</sup> Many observers see a failure of markets and national tax policies to keep pace with such globalization realities. Could improved *double taxation agreements* between Switzerland and developing countries make taxation more just?<sup>22</sup> Or would *unitary taxation* of multinationals be a better way of distributing tax revenues fairly and sustainably between countries?<sup>23</sup> And will developing countries profit from or be left out of the current trend towards *automatic exchange of (tax) information*?<sup>24</sup> Many such issues of cross-border taxation have been taken up in the OECD-driven policy agenda on Base Erosion and Profit Shifting (BEPS), but it remains to be seen whether developing countries will participate and benefit significantly.<sup>25</sup>

### Some key terms

→ **Commodities** are raw materials or primary agricultural products that can be bought or sold, such as copper, coffee, or crude oil.

→ Transit trading (or "merchanting"), as defined by the Swiss National Bank (2015), "refers to international goods trade in which companies based in Switzerland purchase goods on the world market and resell them abroad, without the goods ever being imported into or exported from Switzerland". It is the dominant form of commodity trading in Switzerland and a significant contributor to Gross Domestic Product (over 3 %).<sup>A</sup>

→ Transfer pricing refers to a transaction price being set by two companies that belong to the same multinational group when they make a trade of goods or services with one another. Such trades should be subject to the same price that would apply between *unrelated* parties ("arm's length principle"). Intra-firm trades constitute a major share of international trade, with estimates beginning at around one-third.<sup>8</sup> → Illicit financial flows are defined in a number of ways, according to the OECD, but generally result from "methods, practices, and crimes aiming to transfer financial capital out of a country in contravention of national or international laws". Some definitions include activities that are not strictly illegal, but nevertheless exploitative. Relevant practices include trade mispricing, transfer mispricing, tax evasion, money laundering, and bribery by institutions or individuals.<sup>C</sup>

→ **Trade mispricing** refers to two parties, such as a state-owned firm and a separate multinational, distorting the recorded price of a cross-border transaction, for example to minimize taxes, maximize income, or even to hide illicit capital flows (e.g. kickbacks to so-called politically exposed persons).<sup>D</sup>

→ **Transfer mispricing** (or "abusive transfer pricing") refers to *related* parties that belong to the same multinational group making a cross-border transaction (e.g. trading a commodity), but distorting the recorded transaction price, especially to minimize taxes and maximize income.<sup>E</sup>

A "Transit trading" (or "merchanting") definition based on: Swiss National Bank. 2015. Swiss Balance of Payments and International Investment Position 2014. Zurich and Bern, Switzerland.

B "Transfer pricing" definition based on: The World Bank. 2012. Draining Development? Controlling Flows of Illicit Funds from Developing Countries.

**c** "Illicit financial flows" definition based on: OECD. 2014. Illicit Financial Flows from Developing Countries: Measuring OECD Responses.

D "Trade mispricing" definition based on: Global Financial Integrity. 2010. The Implied Tax Revenue Loss from Trade Mispricing.

**E** "Transfer mispricing" definition based on: Global Financial Integrity. 2010. op. cit.

### Box 2

# Main items on Swiss political agenda with implications for commodity sector

The Swiss government is engaging in various activities – including legislative ones – in response to the Swiss Federal Council's 2013 background report on commodities, a number of proposals, and growing debate. Much will depend on whether resulting legislation is interpreted as applying to Swiss-based transit traders, whether binding rules are introduced, and whether developing countries' concerns are also reflected.

Main agenda items include the following:

Swiss corporate tax law changes are being deliberated by parliament in line with the Corporate Tax Reform III bill. Harmonization with international standards is a stated aim. Reforms to be discussed include abolition of cantonal tax statuses and related tax breaks for international companies (e.g. holding companies or mixed companies), among them commodity firms.<sup>42</sup>

**Illicit financial flows** are the subject of recent legislative activities, mainly focused on money laundering and corruption. In December 2014, the Swiss parliament committed to implementing the Revised Financial Action Task Force (FATF) Recommendations of 2012.<sup>43</sup> It remains to be seen whether its more stringent requirements for transparency and accountability among "financial intermediaries" will be interpreted as applying to commodity traders, too.

**Transparency** rules were proposed by the Swiss government in June 2014 that would require publicly traded companies involved in the extractive industries to declare all payments to foreign governments (based on *Postulate* 13.3365).<sup>44</sup> This would mirror legislation already approved in the US (i.e. Dodd-Frank) and EU. The Swiss government added provisions that would enable an expansion of the transparency rules to include commodity traders (Draft Article 964f, Swiss Code of Obligations), if in line with regulatory changes elsewhere.<sup>45</sup> On 4 December 2015, the Swiss Federal Council agreed to put forward draft amendments to the Swiss law on publicly traded companies – including new transparency rules – towards the end of 2016. In addition, the Swiss government is planning to submit a consultation draft on mandatory sustainability reporting for large companies.<sup>46</sup>

Human rights and environmental due diligence requirements for multinationals and states have been taken up by several Swiss proposals (e.g. *Postulate* 12.3503) oriented towards the UN *Guiding Principles on Business and Human Rights.* A corresponding Swiss Action Plan (2015 – 2017) is slated for a decision by the end of 2015. It highlights how states' duties to protect may be extended to the activities of companies based in their jurisdiction.<sup>47</sup> Further, under the direction of the Federal Department of Foreign Affairs (FDFA) and the State Secretariat for Economic Affairs (SECO), representatives from NGOs and commodity trading companies have been participating in a process aiming to produce sector-specific recommendations on human rights and environmental due diligence and reporting by 2016.<sup>48</sup> Notably, this and similar proposals to build corporate social responsibility (CSR) standards overwhelmingly rely on voluntary commitments. By contrast, the *Konzernverantwortungsinitiative* ("Responsible Business Initiative") launched by 60 NGOs in April 2015 seeks to make human rights and environmental due diligence legally binding for Swiss-based companies.<sup>49</sup>

Automatic exchange of information in tax matters has continued to grow in importance since Switzerland first agreed to share foreigners' bank account details with US tax authorities in 2014, ending decades of strict confidentiality. In 2015, Swiss authorities agreed to share foreigners' bank account data with EU countries starting in 2018<sup>50</sup>, as part of an OECD-led process<sup>51</sup>; but care must be taken to make sure that developing countries are not left out. Developing countries that export commodities could greatly benefit from concluding the type of tax information exchange agreements (TIEAs) advocated by the OECD. Such agreements can help to discover cases of trade mispricing, bribery, money laundering, and, of course, tax evasion. Notably, the Swiss government favours double taxation agreements - tying data exchange to agreed rules on cross-border taxation - over straight TIEAs.52 Overall however, the OECD-driven Base Erosion and Profit Sharing agenda, whose recommendations Switzerland has pledged to follow, is quickly ushering in relevant changes in cross-border taxation and transparency in various areas.<sup>53</sup> Key remaining questions are whether any of the newly exchanged tax data will ever be made available for scrutiny by civil society (including researchers), and under which conditions developing countries will be able to fully participate and benefit.

**Environmental responsibilities of the commodity sector** are emphasized in a *Green Economy Action Plan* adopted by the Swiss government in 2013.<sup>54</sup> Proposed amendments to the country's Environmental Protection Act were also discussed, including provisions making it possible to require producers, importers, and traders of goods to submit public reports on their environmental impacts.<sup>55</sup> But these amendments were rejected by the Swiss parliament on 14 September 2015, despite their initial popularity during the consultation phase.<sup>56</sup> Nevertheless, Switzerland supports several international initiatives to promote sustainable production and trade of commodities, including the Sustainable Trade Initiative (IDH)<sup>57</sup> and the BioTrade Initiative.<sup>58</sup>

*Corruption, conflict, and money laundering* are frequently tied to the high-value energy commodities and minerals extracted in developing countries, with serious implications for human rights.<sup>26</sup> Research, although limited, has even suggested that some extractive companies systematically use corruption to gain access to commodities<sup>27</sup>, for example by paying local elites to secure resource rights. Precious goods such as gold or oil can trigger local conflicts, even wars, or be used to fund them.<sup>20</sup> There is also a special risk of laundering money<sup>29</sup> in the extractive industries or of laundering commodities themselves (e.g. by refining tainted gold).<sup>30</sup> Solution-focused studies should look for ways (e.g. regulatory) of preventing commodity firms from being exposed to or exploiting such conditions linked to human rights violations.<sup>31</sup>

*Speculation and hedging* linked to commodities, especially food, is another pressing issue. Some studies suggest that intensified trading of food commodity derivatives (e.g. futures contracts for grains) may have been partly responsible for recent food price spikes, which unduly harm the poor.<sup>32</sup> The lines appear to be blurring between *legitimate hedging* against price drops by commercial traders and *profit-focused speculation* by financial players.<sup>33</sup> Research is needed on the involvement of Swiss-based actors in such speculation – especially non-transparent "over the counter" derivatives trading – and on precautionary measures that might curb food price volatility.<sup>34</sup>

### Opacity: a core challenge

Lack of transparency obscuring the commodities trade is a fundamental challenge. It complicates research on risky knowledge gaps and may be the single biggest source of debate and pressure on Switzerland. Much relates to the way in which trade data are (not) kept or reported, in particular transit trade data. Since the goods handled by transit (or "merchant") traders never physically enter Switzerland, they overwhelmingly elude standard record-keeping by the Swiss Federal Customs Administration. Only the Swiss National Bank reports any significant official statistics on transit trading: aggregate annual figures of sales, expenses, and net receipts that testify to transit trading's major economic significance, but little else. There are no centrally compiled and reported statistics on the origin and destination countries, individual commodities (quantity, quality, applied standards), specific companies, itemized payments (e.g. to foreign governments), prices, etc. involved in the Swiss-based transit trade. Also noticeably absent are systematic public data on Swiss tax revenues from the commodity sector.<sup>35</sup> Fragmented data for 2013 suggest that federal fiscal revenues for just one commodity - crude oil - amounted to CHF 6.37 billion.<sup>36</sup>

### Reputation risk

Though it may be attractive to traders, Switzerland's opacity is not helping the country's reputation. Since 2011, Switzerland has

occupied the top spot of the Tax Justice Network's Financial Secrecy Index, which ranks countries based on their "contribution of opacity to global financial flows".<sup>37</sup> In 2014, a controversial study published by the Center for Global Development (CGD) used UN Comtrade data on physical exports to and from Switzerland to estimate the possible costs to developing countries of mispricing by Swissbased transit traders. The study's upper estimates have since been disputed and voluntarily retracted by the authors for reanalysis.<sup>38</sup> But in 2015, Swiss-based researchers deemed the study's lower estimates of illicit outflows to Switzerland - USD 8 to 15 billion annually - to be "the most realistic estimates of illicit flows to Switzerland related to the commodity trade"<sup>F</sup> that are currently possible given major data limitations.<sup>39</sup> Notably, even the study's lowest estimate of illicit flows (USD 8 billion) is substantially larger than the average amount of Swiss overseas development aid per year. The study also caught the attention of the Africa Progress Panel (chaired by former UN Secretary-General Kofi Annan), which singled out Switzerland for criticism at a World Trade Organization public forum on the commodities trade.40

### Transparency enables research

The total sales revenues of transit trading in Switzerland generated abroad were CHF 763 billion in 2011 alone – more than the entire Swiss GDP.<sup>41</sup> A sector of this magnitude merits greater transparency, especially from the perspectives of sustainable development and (research) cooperation with developing countries. The Swiss government could facilitate the collection and release of much better disaggregated data on the commodities trade. This would enable improved oversight and more robust studies.

Of course, transparency is not an end in itself. It is more of a precondition. The bigger question is whether it eventually leads to a more just and sustainable commodity sector. Studies should examine whether stricter rules on company reporting result in fairer distribution and better use of commodity revenues, for example by increasing pressure applied by informed citizens.

### Science can help to point the way forward

Pressure from within and without has already led to a number of policy initiatives and parliamentary activities in Switzerland (see Box 2). In addition, the Swiss government is monitoring relevant reforms being pursued elsewhere (see Box 3) with a view to international policy harmonization. At first glance, Switzerland and similar commodity hubs appear to confront fundamental challenges stemming from conflicting domestic and foreign goals: in particular, the goal of maintaining "competitive" business-friendly regulatory frameworks and tax regimes at home, versus that of fulfilling human rights obligations abroad and fostering trade that enables poorer countries to mobilize their resource wealth for their own development.<sup>70</sup> Notably, the Swiss scientific community could contribute to reconciling these seemingly opposing goals by doing the following:

Reframing challenges and solutions based on an integrated perspective. Research using frameworks such as sustainable development, common concern<sup>21</sup>, human rights, inclusive growth, and green economy could provide a fuller, more coherent picture of the pros and cons of commodity trading and the opportunities for change. It could especially help to identify joint ways forward (e.g. regional or global agreements) based on shared, transnational

### Box 3

# Key outside regulations and initiatives on transparency

Several outside regulations and initiatives, driven especially by the EU and US, aim to increase transparency and accountability in finance and trade. They often bear direct implications for the commodity sector. Some are "hard law" approaches seeking to reduce risks via binding regulations. Others are "soft law" approaches seeking to achieve the same via voluntary measures. Swiss policymakers are monitoring their progress with a view to harmonization.

The Dodd-Frank Wall Street Reform and Consumer Protection Act, a direct US response to the 2008 financial crisis, is a seminal piece of "hard law" legislation aimed at increasing stability, transparency, and accountability in finance, banking, and trade.<sup>59</sup> It includes provisions affecting extractive companies. *Section 1502*, for example, requires US companies using potential "conflict minerals" from the Democratic Republic of Congo to file public reports on their due diligence efforts to the US Securities and Exchange Commission (SEC). *Section 1504* requires oil, gas, and mineral firms to report payments made to foreign governments each year in a standard format enabling public compilation by the SEC. *Section 619*, the so-called Volcker Rule, restricts certain speculative activities by banks.<sup>60</sup> Industryled challenges in US courts have caused delays in implementation.<sup>61</sup>

**EU directives on accounting and transparency**, partly modelled after Dodd-Frank, were adopted beginning in 2013, putting the EU back at the forefront of the push for greater transparency and accountability in business, especially in the extractive industries. *Directive 2013/34/EU* on accounting, for example, introduced the requirement of country-by-country (even project-by-project) reporting by extractive companies on payments made to foreign governments.<sup>62</sup> *Directive 2014/95/EU* added an amendment further strengthening corporate social responsibility requirements, including disclosure obligations regarding important non-financial issues such as environmental and human rights impacts.<sup>63</sup> *Directive 2013/50/EU* on transparency includes additional provisions on reporting of revenues generated by exploiting natural resources.<sup>64</sup> Member countries must begin implementing these provisions in 2016.

**OECD guidelines**, though non-binding, nonetheless help to build consensus and provide strong blueprints for regulations relevant to the commodities trade. They include the *OECD Guidelines for Multinational Enterprises*<sup>55</sup>, the *OECD Transfer Pricing Guidelines for Multinational Enterprises* and Tax Administrations<sup>66</sup>, and the *OECD Base Erosion and Profit Sharing Initiative*.<sup>57</sup> A related Action Plan on Base Erosion and Profit Shifting is quickly gaining traction in OECD countries, including Switzerland.<sup>68</sup>

**The Extractive Industries Transparency Initiative (EITI)** is the preeminent "soft law" measure towards greater openness and accountability among major business players and governments involved in extractive industries.<sup>69</sup> Its global reach, enabling participation by developing-country governments and multinationals alike, is one of its biggest strengths. Switzerland has contributed funds to EITI, but not yet joined the process.

interests such as socio-political stability, environmental protection, fair competition and taxation, human rights, ending corruption, etc.

- Emphasizing policy coherence for (sustainable) development. In line with adopting an integrated perspective, studies could seek ways of harmonizing Switzerland's trade and foreign policies (including development cooperation). Could rules on the trade of commodities and derivatives within Switzerland be shaped to benefit food and energy security in developing countries?<sup>72</sup> Are improving transparency at home and aiding development abroad two sides of the same coin?<sup>73</sup>
- Studying the impacts of binding regulations versus voluntary guidelines. Key partner countries (e.g. US, EU) are pursuing "hard

F Carbonnier G, Zweynert de Cadena A. 2015. Commodity Trading and Illicit Financial Flows. International Development Policy | Revue internationale de politique de développement [online], Policy Briefs | Working Papers. doi:10.4000/poldev.2054; http://poldev.revues.org/2054



law" and "soft law" reforms of business, finance, and trade, especially to increase transparency and accountability. This includes reforms meant to improve the accountability of businesses for human rights impacts.<sup>74</sup> Do mandatory or voluntary measures have discernable impacts, for example on company reporting? How is compliance assessed or enforced domestically and internationally? And what are the costs of improving transparency?<sup>75</sup> Comparative studies could help to identify the most effective regulatory or voluntary measures and how they could be adopted in Switzerland.

 Organizing public discussions between science, policy, industry, and civil society. Swiss scientists and the academic community can provide much-needed forums for talks about commodities trading in Switzerland. They can bring stakeholders together to discuss the facts, missing data, common interests, and sources of disagreement. Greater dialogue and a shared understanding of the challenges are sorely needed.

 Examining domestic impacts in Switzerland. Gaining a fuller picture of impacts and opportunities also requires studying easily overlooked dynamics in Switzerland itself. Are there hidden risks of being home to a sector that contributes more to the Swiss GDP than tourism, but employs 20 times *fewer* people domestically (10,000 vs. 200,000)? Or are there positive spillover effects on the growth of domestic expertise and on opportunities to spearhead beneficial changes in the commodity sector? Studies could also explore Swiss public awareness of the commodity sector, or its effects on the agenda-setting of Swiss political parties.

Highlighting agents of change. Finally, researchers could identify and study leaders and success stories in the effort to improve the commodities trade. Governments, businesses, and civil society movements can all spearhead meaningful change. Stakeholders in the "home" country, Switzerland, may take the lead and merit close study: for example, a major Geneva-based oil trader recently committed to making its payments to foreign governments more transparent.<sup>76</sup> What effects will it have? Or stakeholders in "host" countries, especially government leaders, may point the way ahead: a few developing countries appear to have avoided the socalled resource curse and improved their natural resource management. How have African countries like Botswana or Latin American countries like Bolivia managed to channel their resource wealth into national development?<sup>77</sup> Can their success be replicated elsewhere? These and many other questions are ripe for scientific research.

#### FURTHER READING

Bucher D, Bürgi Bonanomi E, Dey P, Elsig M, Espa I, Franzi S, Gelb SR, Giger M, Holzgang M, Rist S, Wehrli J, Wettstein F. 2015. The Commodity Sector and Related Governance Challenges from a Sustainable Development Perspective: The Example of Switzerland – Current Research Gaps. CDE WTI IWE Joint Working Paper No. 1. Bern and St. Gallen, Switzerland: Centre for Development and Environment (CDE), World Trade Institute (WTI), and the Institute for Business Ethics (IWE). http://www.kfpe.ch/WorkingPaper-commodity

#### IMPRINT

FACTSHEET AUTHORS: ANU LANNEN (CDE), Elisabeth Bürgi Bonanomi (CDE/WTI), Stephan Rist (CDE), and Judith Wehrli (CDE/WTI); PROJECT MANAGERS: JON-Andri Lys (KFPE), Stephan Rist (CDE), and Christoph Ritz (Proclim); EDITORS: ANU LANNEN (CDE), Stefan Zach (z.a.ch gmbh); PHOTOS: Fotolia; LAYOUT: Gregorio Caruso, Basel

### THE FOLLOWING EXPERTS CONTRIBUTED TO THIS FACTSHEET

Daniela Bucher (cde), Thomas Cottier (wm), Pascal Dey (we), Manfred Elsig (wm), Ilaria Espa (wm), Simone Franzi (wm), Stephen Gelb (WTI), Markus Giger (cde), Milena Holzgang (we), Florian Wettstein (we)

This factsheet of the Swiss Academies of Arts and Sciences draws on findings in the working paper specified under "Further reading". It also incorporates insights from attendees at a work-shop held to discuss the working paper. Workshop attendees included representatives of Swiss federal agencies, NGOs, the private sector, and other research groups. The factsheet was written in the context of the project "Global change and developing countries: why should we care?" managed by the Commission for Research Partnerships with Developing Countries (KFPE) and the Forum for Climate and Global Change (ProClim), two working groups of the Swiss Academy of Sciences (SCNAT).

A project of the Swiss Academy of Sciences



A PDF version of this factsheet featuring extensive references and notes may be down-loaded for free at:

www.swiss-academies.ch/en/factsheets



# Switzerland and the Commodities Trade Taking Stock and Looking Ahead

### **References and notes** (All Internet links last verified on 20 November 2015)

- Sachs JD, Warner AM. 2001. Natural resources and economic development: The curse of natural resources. European Economic Review 45 (4): 827–38. http://earth.columbia.edu/ sitefiles/file/about/director/pubs/EuroEconReview2001.pdf; Manzano 0, Rigobon R. 2001. Resource Curse or Debt Overhang? NBER Working Paper No. 8390. http://www.nber.org/ papers/w8390.pdf; Frankel JA. 2010. The Natural Resource Curse: A Survey. NBER Working Paper No. 15836. http://www.nber.org/papers/w15836.pdf.
- 2 Example of foreign criticism of Swiss commodity hub: http://www.spiegel.de/international/business/commodities-companies-flock-to-switzerland-for-tax-breaks-a-841287.html.
- 3 Terazono E, Blas J. 2013. Swiss ties to trading houses under strain. Financial Times, 26 March 2013. http://www.ft.com/intl/cms/s/0/c5c51e18-95f6-11e2-9ab2-00144feabdc0. html#axz3nPBRyriX; Blas J. 2013. Commodities: Tougher times for trading titans. Financial Times, 26 March 2013. http://www.ft.com/intl/cms/s/0/250af818-a1c1-11e2-8971-00144feabdc0.html#axz3nPBRyriX; EvB [Erklärung von Bern], editor. 2011. Rohstoff: Das gefährlichste Geschäft der Schweiz. Zurich, Switzerland. Salis Verlag.
- 4 Swiss National Bank. 2013. Zahlungsbilanz der Schweiz 2012. Zurich and Bern, Switzerland. http://www.snb.ch/ext/stats/bop/pdf/de/bop.book.pdf.
- 5 Swiss Federal Council. 2013. Background Report: Commodities Report of the Interdepartmental Platform on Commodities to the Federal Council. Bern, Switzerland: Swiss Confederation. http://www.news.admin.ch/NSBSubscriber/message/attachments/ 30136.pdf.
- 6 Website of the Swiss Trading and Shipping Association (STSA): http://www.stsaswiss.ch/ home.
- 7 Swiss Bankers Association. 2013. Switzerland as a Commodity Trading Centre. Swiss-Banking Factuals. http://shop.sba.ch/999930\_e.pdf.
- 8 Swiss Federal Council. 2013. op. cit. [pp. 11–12].
- 9 Alexandra G, Guéniat M, Kummer L. 2014. Big Spenders: Swiss Trading Companies, African Oil and the Risks of Opacity. Natural Resource Governance Institute. http://www.resourcegovernance.org/sites/default/files/BigSpenders\_20141014.pdf.
- 10 Swiss Federal Council. 2013. op. cit
- 11 Swiss Federal Council. 2013. op. cit.
- 12 Mariani D. 2012. Switzerland: The World's Gold Hub. Swissinfo. http://www.swissinfo.ch/ eng/switzerland--the-world-s-gold-hub/33706126.
- 13 Swiss Federal Council. 2013. op. cit.
- 14 Swiss Customs Administration. 2015. Swiss Working Tariff. Accessed 8 March 2015. http://xtares.admin.ch/tares/login/loginFormFiller.do?l=it.
- 15 OECD [Organisation for Economic Co-operation and Development]. 2014. Illicit Financial Flows from Developing Countries: Measuring OECD Responses. http://www.oecd.org/ corruption/Illicit\_Financial\_Flows\_from\_Developing\_Countries.pdf; Thut W. 2014. Illicit Financial Flows: Challenges and Possible Courses of Action for Swiss Development Policy. Bern, Switzerland: Swiss Agency for Development Cooperation (SDC). https://www. eda.admin.ch/dam/deza/en/documents/Publikationen/Briefing-Papers/dp-brief-4-2014\_ EN.pdf.
- 16 Hollingshead A. 2010. The Implied Tax Revenue Loss from Trade Mispricing. Global Financial Integrity. [p. 2]. http://www.gfintegrity.org/storage/gfip/documents/reports/im plied%20tax%20revenue%20loss%20report\_final.pdf.
- 17 For more on intra-firm trade and transfer pricing challenges, refer to: Lanz R, Miroudot S. 2011. Intra-firm trade: Patterns, determinants and policy implications, OECD Trade Policy Papers No. 114. Paris, France: OECD Publishing. http://dx.doi.org/10.1787/5kg9p39lrwnn-en.

- 18 For more on the "arm's length principle" with respect to transfer pricing, see: http:// www.oecdobserver.org/news/archivestory.php/aid/670/Transfer\_pricing:\_Keeping.it\_ at\_arms\_length.html; Reuter P, editor. 2012. Draining Development? Controlling Flows of Illicit Funds from Developing Countries. Washington DC: The World Bank. [p. 303]. https://openknowledge.worldbank.org/bitstream/handle/10986/2242/668150PUB0EP I0067848B09780821388693.pdf.
- 19 OECD [Organisation for Economic Co-operation and Development]. 2013. Addressing Base Erosion and Profit Shifting. Paris, France: OECD Publishing. doi:10.1787/9789264192744-en.
- 20 For more on the trend towards vertical integration in the commodities trade, see: http://www.economist.com/news/finance-and-economics/21615620-commodity-trading-houses-are-growingand-running-more-risks-end-end-game.
- 21 OECD. 2013. op. cit. Also referred to as "Base Erosion and Profit Sharing", the OECD recently formed a working group on it: http://www.oecd.org/ctp/beps.htm.
- 22 Bürgi Bonanomi E, Meyer-Nandi S. 2014. Schweizer Doppelbesteuerungsabkommen: Aktuelle Politik und Entwicklungsrelevanz. Jusletter, 30 June 2014.
- 23 Picciotto S. 2012. Towards Unitary Taxation of Transnational Corporations. Tax Justice Network. http://www.taxjustice.net/cms/upload/pdf/Towards\_Unitary\_Taxation\_1-1.pdf.
- 24 For more on tax-related exchange of information agreements, consult: http://www.oecd. org/tax/exchange-of-tax-information/automaticexchange.htm.
- 25 The OECD responses to FAQs about the Base Erosion and Profit Sharing (BEPS) agenda, including developing-country participation: http://www.oecd.org/ctp/beps-frequentlyaskedquestions.htm.
- 26 Global Financial Integrity, African Development Bank. 2013. Illicit financial flows and the problem of net resource transfers from Africa: 1980–2009. http://www.gfintegrity.org/ report/report-net-resources-from-africa/; Eigen P. 2007. Fighting corruption in a global economy: Transparency initiatives in the oil and gas industry. Houston Journal of International Law 29 (2): 327–54; Karl TL. 1997. The Paradox of Plenty: Oil Booms and Petro-States. Berkeley, CA: University of California Press.
- 27 Kolstad I, Wiig A. 2009. Is transparency the key to reducing corruption in resource-rich countries? World Development 37 (3): 521–32. doi:10.1016/j.worlddev.2008.07.002
- 28 Le Billon P. 2001. The political ecology of war: Natural resources and armed conflicts. Political Geography 20 (5): 561–84. doi:10.1016/S0962-6298(01)00015-4; Morelli M, Rohner D. 2014. Resource Concentration and Civil Wars. NBER Working Paper No. 20129. doi:10.3386/w20129; Berman N, Couttenier M, Rohner D, Thoenig M. 2014. This Mine Is Minel How Minerals Fuel Conflicts in Africa. CEPR Discussion Paper No. DP10089. http://www.oxcarre.ox.ac.uk/files/OxCarreRP201411.pdf;CaselliF,MorelliM,Rohner D.2013. Geography of Inter-State Resource Wars. NBER Working Paper No. 18978. doi:10.3386/ w18978.
- 29 Schneider S. 2004. Money Laundering in Canada: An Analysis of RCMP Cases. Nathanson Centre for the Study of Organized Crime and Corruption, York University, Toronto, Canada. https://www.publicsafety.gc.ca/cnt/rsrcs/lbrr/ctlg/shwttls-eng.aspx?d=CPC&i=3921.
- 30 For an example of possible "commodity laundering", see: https://www.bernedeclaration. ch/media/press-release/press/claim\_against\_swiss\_gold\_refinery\_demonstrates\_in creasing\_problem\_with\_commodity\_laundering.
- 31 Rybi U, Longchamp O. 2014. Négoce des matières premières, risques de corruption, loi sur le blanchiment d'argent et matières premières illicites. Quelques considérations. Blanchiment d'argent : actualité et perspectives suisses et internationales. Geneva, Switzerland: Schulthess éditions romandes, pp. 241–64.
- 32 Bass H. 2013. Finanzspekulation und Nahrungsmittelpreise: Anmerkungen zum Stand der Forschung, Institut für Weltwirtschaft und Internationales Management. http://www.brot

fueralle.ch/fileadmin/deutsch/2\_Entwicklungpolitik\_allgemein/A\_Recht\_auf\_Nahrung/ Nahrungsmittelspekulation/Meta-Studie.pdf.

- 33 EvB. 2011. op. cit.
- 34 Lein B, de Roquefeuil Q, van Seters J. 2014. Strengthening Policy Coherence for Development in Switzerland: Food Security. ECDPM Discussion Paper No. 166. European Centre for Development Policy Management (ECDPM). http://ecdpm.org/publications/strength ening-policy-coherence-development-switzerland.
- 35 Swiss Federal Council. 2013. op. cit. [p. 10]; Foraus Forum Aussenpolitik. 2014. Gouverner, c'est prévoir – die steigenden Kosten der Schweizer Rohstoffpolitik: Warum es am Rohstoffhandelsplatz Schweiz konsequente Transparenzregeln braucht [p. 13]. http://www.for aus.ch/#!/themen/cl/content-31-Gouverner-cest-prvoir--Die-steigenden-Kosten-der-Schweizer-Rohstoffpolitik.
- 36 Erdöl-Vereinigung. 2015. Jahresbericht 2013. http://www.erdoel.ch/images/com\_evdocs/ 1621\_ev\_jb13\_d.pdf.
- 37 For more on the Financial Secrecy Index, compiled by the Tax Justice Network, see: "Lifting the veil: An index of financial secrecy." The Economist [online]. 2013. http://www. economist.com/blogs/schumpeter/2013/11/index-financial-secrecy; Cobham A, Janský P, Meinzer M. 2015. The Financial Secrecy Index: Shedding new light on the geography of secrecy. Economic Geography 91: 281–303. doi:10.1111/ecge.12094.
- 38 Statement by Alex Cobham on voluntary retraction and reanalysis of possible Swissbased commodity mispricing estimates: http://www.cgdev.org/blog/how-much-are-developing-countries-losing-commodity-mispricing-really. And the original study that started the controversy: Cobham A, Janský P, Prats A. 2014. Estimating Illicit Flows of Capital via Trade Mispricing: A Forensic Analysis of Data on Switzerland. Center for Global Development Working Paper No. 350. http://www.isn.ethz.ch/Digital-Library/ Publications/Detail/?ots591=0c54e3b3-1e9c-be1e-2c24-a6a8c7060233&Ing=en&id= 176250.
- 39 Carbonnier G, Zweynert de Cadena A. 2015. Commodity Trading and Illicit Financial Flows. International Development Policy | Revue internationale de politique de développement [online], Policy Briefs | Working Papers. doi:10.4000/poldev.2054; http://poldev.revues. org/2054.
- 40 Remarks to WTO Public Forum 2014: Working Session 16 made by Edward Harris, Head of Communications, Africa Progress Panel [in which Switzerland's opacity of commodities trade is criticized]. http://www.africaprogrespanel.org/africas-citizens-need-a-more-trans parent-commodities-trade.
- 41 Swiss Federal Council. 2013. op. cit. [p. 7].
- 42 For details on the Swiss corporate tax law changes under consideration, see: https://www.news.admin.ch/message/index.html?lang=en&msg-id=57551.
- 43 For details on Swiss implementation of the Revised Financial Action Task Force (FATF) Recommendations of 2012, see: https://www.sif.admin.ch/sif/en/home/dokumentation/ finweb/regulierungsprojekte/umsetzung-der-2012-revidierten-empfehlungen-gegengeldwaescherei.html.
- 44 Swiss Federal Council. 2014. Bericht in Erfüllung der Empfehlung 8 des Grundlagenberichts Rohstoffe und des Postulats 13.3365 «Mehr Transparenz im Schweizer Rohstoffsektor». Bern, Switzerland: Swiss Confederation. For details on the Swiss government's efforts to "modernize" its laws on publicly traded companies, see: http://www.ejpd.admin. ch/ejpd/de/home/aktuell/news/2014/2014-11-28.html.
- 45 Link to the draft revisions of the Swiss Code of Obligations under discussion (see Article 964f, in particular):http://www.ejpd.admin.ch/dam/data/bj/wirtschaft/gesetzgebung/ aktienrechtsrevision14/vorentw-d.pdf; for the explanatory report, see:http://www.ejpd. admin.ch/dam/data/bj/wirtschaft/gesetzgebung/aktienrechtsrevision14/vn-ber-d.pdf.
- 46 For details on the Swiss Federal Council's decision regarding the law on publicly traded companies, see: https://www.admin.ch/gov/en/start/documentation/media-releases.msgid-59797.html; regarding sustainability reporting, see position paper and action plan of the Swiss Federal Council on corporate social responsibility, 1 April 2015, p. 41 (actions for the promotion of transparency): http://www.news.admin.ch/NSBSubscriber/message/attachments/38880.pdf.
- 47 Swiss Federal Council. 2015. "Nationaler Aktionsplan der Schweiz 2015–2017 zur Umsetzung der UNO-Leitprinzipien für Wirtschaft und Menschenrechte". In elaboration. Version 15, 13 April 2015.
- 48 For more on ongoing efforts to create CSR recommendations specific to the Swisscommodity sector, refer to "Recommendation 11" in the Federal Council Background Report: Commodities – Second status report on the implementation of the recommendations, available at: http://www.news.admin.ch/NSBSubscriber/message/attachments/40643.pdf.
- 49 Details on the Konzernverantwortungsinitiative ("Responsible Business Initiative") available at: http://konzern-initiative.ch.
- 50 State Secretariat for International Financial Matters. 2015. Automatic exchange of information. https://www.sif.admin.ch/sif/en/home/themen/internationale-steuerpolitik/automatischer-informationsaustausch.html.
- 51 OECD. 2013. op. cit.
- 52 Swiss Federal Council. 2013. op. cit. [p. 46].
- 53 For more on ongoing uptake of the BEPS agenda in Swiss legislation, refer to "Recommendation 5" in the Federal Council Background Report: Commodities – Second status

report on the implementation of the recommendations, available at: http://www.news. admin.ch/NSBSubscriber/message/attachments/40643.pdf.

- 54 Federal Office for the Environment (FOEN). 2013. Green Economy: Report and Action Plan. Bern, Switzerland: FOEN. http://www.bafu.admin.ch/dokumentation/medieninform ation/00962/index.html?lang=en&msg-id=49457.
- 55 Revision of the Environmental Protection Act (Bundesgesetz über den Umweltschutz, in German): http://www.news.admin.ch/NSBSubscriber/message/attachments/31227.pdf.
- 56 http://www.parlament.ch/d/suche/Seiten/legislaturrueckblick.aspx?rb\_id=20140019.
- 57 Website of the Sustainable Trade Initiative: http://www.idhsustainabletrade.com.
- 58 Website of the BioTrade Initiative: http://www.biotrade.org.
- 59 For a commodity-relevant discussion of US Dodd-Frank legislation, see: Matfess H. 2012. Dodd-Frank's Cardin-Lugar Amendment Undermined by Weak SEC. Foreign Policy in Focus. http://fpif.org/dodd-franks\_cardin-lugar\_amendment\_undermined\_by\_weak\_sec/; Reilkoff T. 2014. Legislating Corporate Social Responsibility: Expanding Social Disclosure Through the Resource Extraction Disclosure Rule. Minnesota Law Review 98 (6): 2435 – 78.
- 60 Barth JR, McCarthy D. 2013. What is the likely impact of the Volcker Rule on markets, businesses, investors, and job creation? The Journal of Private Enterprise 28 (2): 63 – 74.
- 61 Example of industry challenges to Dodd-Frank: http://www.theguardian.com/global-development/2015/jul/22/dodd-frank-act-section-1504-natural-resources-extractive-industries-oil-api-sec.
- 62 For more on Directive 2013/34/EU on accounting requiring country-by-country reporting of extractive industry payments to foreign governments, see: http://eur-lex.europa.eu/ LexUriServ/LexUriServ.do?uri=0):L:2013:182:0019:0076:EN:PDF.
- 63 For more on Directive 2014/95/EU including additional requirements of corporate social responsibility, see: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX-:32014L0095&from=EN.
- 54 For more on Directive 2013/50/EU on transparency, see: http://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:32013L0050&from=EN.
- 65 OECD Guidelines for Multinational Enterprises: http://mneguidelines.oecd.org/text.
- 66 OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations: http://www.oecd.org/tax/transfer-pricing/transfer-pricing-guidelines.htm.
- 67 OECD Base Erosion and Profit Sharing Initiative: http://www.oecd.org/ctp/beps.htm.
- 68 For more on the OECD Action Plan on Base Erosion and Profit Shifting, refer to: http://www.oe cd.org/tax/action-plan-on-base-erosion-and-profit-shifting-97892642 02719-en.htm.
- 69 For a relevant discussion of the Extractive Industries Transparency Initiative (EITI), see: Corrigan C. 2014. Breaking the resource curse: Transparency in the natural resource sector and the Extractive Industries Transparency Initiative. Resources Policy 40: 17-30. doi:10.1016/j.resourpol.2013.10.003; Caspary G. 2012. Practical steps to help countries overcome the resource curse: The Extractive Industries Transparency Initiative. Global Governance: A Review of Multilateralism and International Organizations 18 (2): 171–84; Short C. 2014. The development of the Extractive Industries Transparency Initiative. Journal of World Energy Law & Business 7 (1): 1–8. doi:10.1093/jwelb/jwt026; Kolstad I, Wiig A. 2009. Is transparency the key to reducing corruption in resource-rich countries? World Development 37 (3): 521–32. doi:10.1016/j.worlddev.2008.07.002.
- 70 For more on how increasing transparency and curbing illicit financial flows could help poor countries to mobilize their resources for development, refer to: OECD. 2014. Illicit Financial Flows from Developing Countries: Measuring OECD Responses. http://www.oecd. org/corruption/Illicit\_Financial\_Flows\_from\_Developing\_Countries.pdf.
- 71 Cottier T. 2012. The emerging principle of common concern: A brief outline. Multilevel Governance of Interdependent Public Goods: Theories, Rules and Institutions for the Central Policy Challenge in the 21st Century, edited by Ernst-Ulrich Petersmann. EUI Working Papers RSCAS No. 23 [pp. 185 – 93].
- 72 Lein B, de Roquefeuil Q, van Seters J. 2014. Strengthening Policy Coherence for Development in Switzerland: Food Security. ECDPM Discussion Paper No. 166. European Centre for Development Policy Management (ECDPM). http://ecdpm.org/publications/strength ening-policy-coherence-development-switzerland.
- 73 Bürgi Bonanomi E. 2015. Sustainable Development in International Law Making and Trade. Edward Elgar Publishing. ISBN: 9781784717261. http://www.e-elgar.com/shop/sustainabledevelopment-in-international-law-making-and-trade.
- 74 For more on efforts to advance human rights accountability in business, see: http://business-humanrights.org/en/government-action-platform.
- 75 Byiers B, Bessems J. 2015. Costs if You Do, Costs if You Don't: Promoting Responsible Business and Reporting-Challenges for Policy Makers. ECDPM Discussion Paper No. 176. European Centre for Development Policy Management (ECDPM). http://ecdpm.org/ wp-content/uploads/DP176\_Costs-If-You-Do-May-2015-Final-ECDPM.pdf.
- 76 For more on the voluntary transparency of Trafigura, see: http://www.tagesanzeiger.ch/ wirtschaft/unternehmen-und-konjunktur/Trafigura-bringt-Branche-in-Zugzwang-/sto ry/24797076.
- 77 Van der Ploeg F. 2011. Natural Resources: Curse or Blessing? Journal of Economic Literature 49 (2): 366 – 420.