



Electoral Institute for Sustainable Democracy in Africa

MINING FOR MEANING

What the APRM Says (and Doesn't Say) about
Africa's Extractive Industries

by **Rod Alence**



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This paper is part of a series commissioned by the Electoral Institute for Sustainable Democracy in Africa (EISA) exploring the content of APRM Country Review Reports (CRRs) currently available on issues including gender, land, youth, extractive industries, elections and violence, and government responses to the APRM CRRs.

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Africa is richly endowed with mineral and fuel resources, and the continent's development prospects depend heavily on how well the extraction of these resources is governed. Researchers and policymakers throughout the world have made much of the spectre of a 'natural resource curse' (Frankel 2010; Ross 1999). This curse supposedly condemns countries blessed with abundant natural resources to a host of unpalatable outcomes, such as economic stagnation (Sachs & Warner 2001), undemocratic rule (Ross 2001), accountability failures and corruption (Leite & Weidmann 1999) and violent conflict (Collier, Hoeffler & Rohner 2009). Yet evidence from within Africa belies this determinism: resource rich countries are among the best performers and among the worst performers on the continent according to various political and economic indicators, and they fall about everywhere in between (Alence 2015). Natural resources in themselves are neither a blessing nor a curse. What matters is how and how well their extraction is governed.

Regional organisations in Africa have increasingly made developmental challenges associated with extractive industries a priority, especially since about 2008. In that year the United Nations Economic Commission for Africa (UNECA) and the African Union (AU) established a technical team to draft a shared vision for African mining. The resulting Africa Mining Vision was adopted by the African Union in 2009, followed by a more detailed 2011 report by an international study group on Africa's mineral regimes (African Union 2009; Economic Commission for Africa 2011). These documents start from two main premises: first, African mining sectors are enclaves that lack links to social and economic development (a legacy of their colonial origins, reinforced by

World Bank reforms of the 1990s); second, with appropriate policies, resource extraction can be reoriented to promote industrialisation and more inclusive and sustainable development. As the heads of the UNECA and the AU Commission put it, Africa must 'shift focus from simply mineral extraction to much broader developmental imperatives in which mineral policy integrates with development policy' (Economic Commission for Africa 2011, pxiii).

Regional organisations have also placed increasing emphasis on governance challenges related to development, beginning with the New Partnership for Africa's Development (NEPAD), created by the Organisation of African Unity in 2001 (African Union 2001). The main regional initiative to promote improved governance is the AU's African Peer Review Mechanism (APRM), which emerged out of NEPAD. NEPAD and the APRM break with previous initiatives by identifying governance failures as major reasons for Africa's disappointing record of development (Hope 2002; Ikome 2007). The APRM monitors and assesses three areas of governance – political, economic and corporate – and socio-economic development (NEPAD Secretariat 2002). Reviews are voluntary and are informed by an initial country self-assessment followed by consultations with government, political parties and civil society organisations (Masterson, Busia & Jinadu 2010). The APRM's mandate is 'to ensure that the policies and practices of participating states conform to the agreed political, economic and corporate governance values' in an AU declaration (NEPAD Secretariat 2003a, p1).

Despite an overlap between the objectives of the Africa Mining Vision and the APRM, the initiatives are grounded in different understandings of the

links among governance, politics and policy. On the one hand, the Africa Mining Vision focuses primarily on advocating a policy framework for resource-led industrialisation and development, explicitly relegating governance to secondary status as ‘only part of the range of challenges that have to be addressed’ (Economic Commission for Africa 2011, p19). The approach is that of the technical policy expert: specifying the desired policy blueprint and treating governance as the political will and institutional capacity required to realise it. On the other hand, the APRM focuses primarily on promoting governance norms intended to make those who wield state power responsive and accountable to their people and shying away from prescribing particular policies. The approach is that of the political expert: specifying desirable decision-making institutions to align governments’ incentives with improving their constituents’ welfare and treating policies as the realisations of the resulting processes. The APRM exemplifies NEPAD’s commitment to governance as a fundamental ‘condition for sustainable development’ (African Union 2001), while Africa Mining Vision’s technical orientation harks back to an older tradition of continental policy frameworks.

The two approaches are not necessarily incompatible, but there are potential tensions about how APRM country reviews should approach issues of resource extraction. One question is how much emphasis the APRM should be hardwired to place on a particular issue-area like resource extraction. The APRM’s original country self-assessment questionnaire barely mentions extractive issues, and where they are mentioned it is within the narrow context of corporate governance and environmental sustainability (NEPAD Secretariat 2004, p59). The Africa Mining Vision picked up on this lack of policy substance, evident in the first few APRM country reports, and proposed adding a dedicated chapter on natural resources to every APRM report (African Union 2009,

p31). A second question is how the treatment of extractive issues should be approached thematically. The Africa Mining Vision’s proposal, had it been implemented, would have increased the emphasis on extractive issues, but ironically it would have done so by placing them in an analytical ‘enclave’ – a standalone chapter separate from the broader discussions of governance and development.

This paper aims to clarify how APRM country reports treat extractive issues – in particular how much emphasis they place on them and how they relate them to the themes of governance and development. My method of analysis is ‘text mining’. It involves extracting word frequencies from the reports and analysing them statistically. (I analyse the 16 reports published so far that are available in English. The report on Mali is the only report excluded, as it has not yet been translated into English.) Systematically analysing word frequencies helps to identify and clarify patterns that might otherwise remain hidden, but I also resort to the ‘old-fashioned’ interpretation of specific passages from specific reports. The result is a clearer sense of what the APRM reports say about extractive issues, and of what they do not say.

The text mining shows that emphasis on extractive issues and their thematic treatment varies widely across the reports but ultimately conforms with identifiable patterns. I investigate three main predictors. One helps explain country-to-country differences in emphasis on extractive issues: the amount of emphasis is greater in reports on countries that depend more heavily on mining and fuel exports. A second predictor helps to explain chapter-to-chapter differences in the thematic treatment of extractive issues: the APRM reporting framework favours treating extractive issues in chapters on corporate and economic governance rather than in chapters on political governance and development. A third helps to explain changes over time in emphasis

and thematic treatment: evolving ideas have led to greater emphasis on extractive issues and to their broader treatment across thematic chapters in recent reports. Each of the three predictors is far from perfect on its own, but taken together they account for much of the variation in emphasis and treatment of extractive issues in the APRM reports.

The rest of this paper proceeds in four sections. The first identifies three clusters of words associated with extractive issues and uses text mining to describe how often they appear in different reports and different chapters. The second uses text mining to assess possible explanations for patterns of emphasis on extractive industries in the APRM reports. The third assesses what the APRM reports do and do not say about Africa's extractive industries. The fourth is a conclusion containing lessons learned about the APRM process and extractive issues.

EXTRACTIVE INDUSTRIES IN THE APRM REPORTS

The natural resource curse is hypothesised to afflict countries with large mining and fuel sectors. I specify three clusters of words to track emphasis on these sectors in the APRM country reports. The first focuses on mining and minerals, the second on oil and natural gas and the third on resource extraction more generally. No list of words could comprehensively and uniquely identify every reference to extractive industries, and a degree of subjective judgement is inevitable. What the list is intended to do is to capture as many references to extractive industries as possible without too many 'false positives' (words that might refer to extractive industries but often do not). The total number of occurrences of the words on the list is an indicator of emphasis on extractive issues in the reports and the distribution of these occurrences across reports and chapters

indicates where extractive industries feature prominently and where they do not.

Each APRM country review culminates in a book-length report, and text mining reduces these reports to 'bags of words' whose frequencies can be analysed statistically. The analysis is aided by the fact that the reports have similar structures. All contain four core thematic chapters on key themes of the APRM: 'democracy and political governance', 'economic governance and management', 'corporate governance', and 'socio-economic development'. These core chapters are preceded by an introductory discussion of the APRM process and country background, which I call 'introduction' and treat as a single chapter. The core thematic chapters are followed by a concluding discussion of findings, and recommendations which I call 'cross-cutting issues' and treat as a single chapter. Each report also begins with an executive summary, which I treat as a chapter in its own right.

Table 1 lists the words in each of the clusters with their frequencies of occurrence. Words in the three clusters occur a combined 2 087 times in the 16 reports. In the analysis I focus on the combined frequencies of all three clusters, but Table 1 provides a more detailed breakdown. Words in the mining and minerals cluster occur 1 040 times, accounting for about half (50%) of the total. Words in the oil and natural gas cluster occur 725 times, accounting for more than a third (35%). Words in the general resource extraction cluster occur 322 times, accounting for the rest (15%).

Words in the mining and minerals cluster are listed with their frequencies in the top section of Table 1. 'Mining' is by far the most common word (462 occurrences), followed by 'mineral' and 'minerals' (combined 176) and 'mines' (113). Together these words account for nearly two-thirds of the occurrences of the cluster. Most other

words in the cluster are specific minerals that are important to several APRM countries, including 'diamond(s)' (69), 'gold' (58) and 'copper' (52). The mining and minerals cluster appears most often in the 'Corporate Governance' chapters (274), followed by the 'Economic Governance' chapters (181). It appears least often in the 'Development' chapters (77) and in the 'Political Governance' chapters (105).

Table 1

Word clusters related to extractive industries		
MINING AND MINERALS	Frequency	Percent
mining	462	22
mineral(s)	176	8
mines	113	5
diamond(s)	69	3
gold	58	3
copper	52	2
miners	27	1
coal	24	1
iron	18	1
aluminium	16	1
quarrying	13	1
tin	12	1
Cluster sub-total	1040	50
OIL AND NATURAL GAS		
oil	527	25
gas	132	6
petroleum	66	3
Cluster sub-total	725	35
NATURAL RESOURCES		
natural resource(s)	177	8
extractive/extraction	59	3
EITI	51	2
rent	35	2
Cluster sub-total	322	15
TOTAL	2087	100

Note: Percentages do not all add up exactly due to rounding.

Words in the oil and natural gas cluster are listed in the middle section of Table 1. The word 'oil' (527 occurrences) on its own accounts for nearly three quarters of the cluster. Other words are 'gas' (132) and 'petroleum' (66). Though these words could conceivably refer to energy requirements or strategies of petroleum-importing countries, they occur most frequently in the reports on the two major oil exporters, Nigeria and Algeria. The cluster appears most often in the 'Economic Governance' chapters (237), reflecting its importance to the macroeconomic stability and public finances of petroleum-exporting countries. It appears second most often in the 'Corporate Governance' chapters (111) and least often in the 'Political Governance' chapters (49).

Words in the final cluster pick up references to resource extraction that are not specific to mining or oil. They are listed in the bottom section of Table 1. The bigrams (two-word sequences) 'natural resource' and 'natural resources' account for more than half of the word cluster (177 occurrences). (The bigrams pick up references specifically to natural resources, as the words 'resource' and 'resources' are often used in ways that have nothing to do with extractive industries.) Next most frequent are 'extractive' and 'extraction' (combined 59), followed by 'Extractive Industries Transparency Initiative' and its abbreviation 'EITI' (51). The cluster also includes 'rent', which is often used to refer to profits from resource extraction that exceed normal returns to capital (35). The word cluster appears most often in the 'Corporate Governance' chapters (84) and in the 'Cross-cutting Issues' chapters (53). Among the thematic chapters, it appears least often in the 'Political Governance' chapter (30).

To give a better sense of the overall pattern of emphasis on extractive industries, Figure 1 presents the combined frequencies of all three clusters, expressed as the average occurrences

per ten thousand words of text. Countries are in the horizontal rows and chapters are in the vertical columns. (Publication years of country reports are listed in parentheses.) The far-right column contains the average frequency for each country report, the bottom row contains the average frequency for each chapter, and the bottom-right cell contains the average frequency across all reports. The internal cells contain the frequencies for individual documents – that is, for specific chapters of specific reports. All frequencies are rounded to the nearest whole number. The cells are colour-coded according to the scale on the right, with higher frequencies corresponding with darker colours.

The frequencies are normalised as occurrences per ten thousand words of text to make it easier to compare emphasis within documents that differ in length. Ten thousand words is roughly equivalent to 30 pages of double-spaced, typed text. The frequencies indicate how often the selected words would occur in a document of that length. The rationale is that the ratio of occurrences of extractive words to total word count better captures the emphasis on extractive issues within a document than does the number of occurrences alone. If words in the extractive clusters appeared, say, 10 times in a chapter that is five thousand words long, it would indicate twice as much emphasis as if they appeared 10 times in a chapter ten thousand words long, because the occurrences would be packed twice as tightly in the shorter chapter.

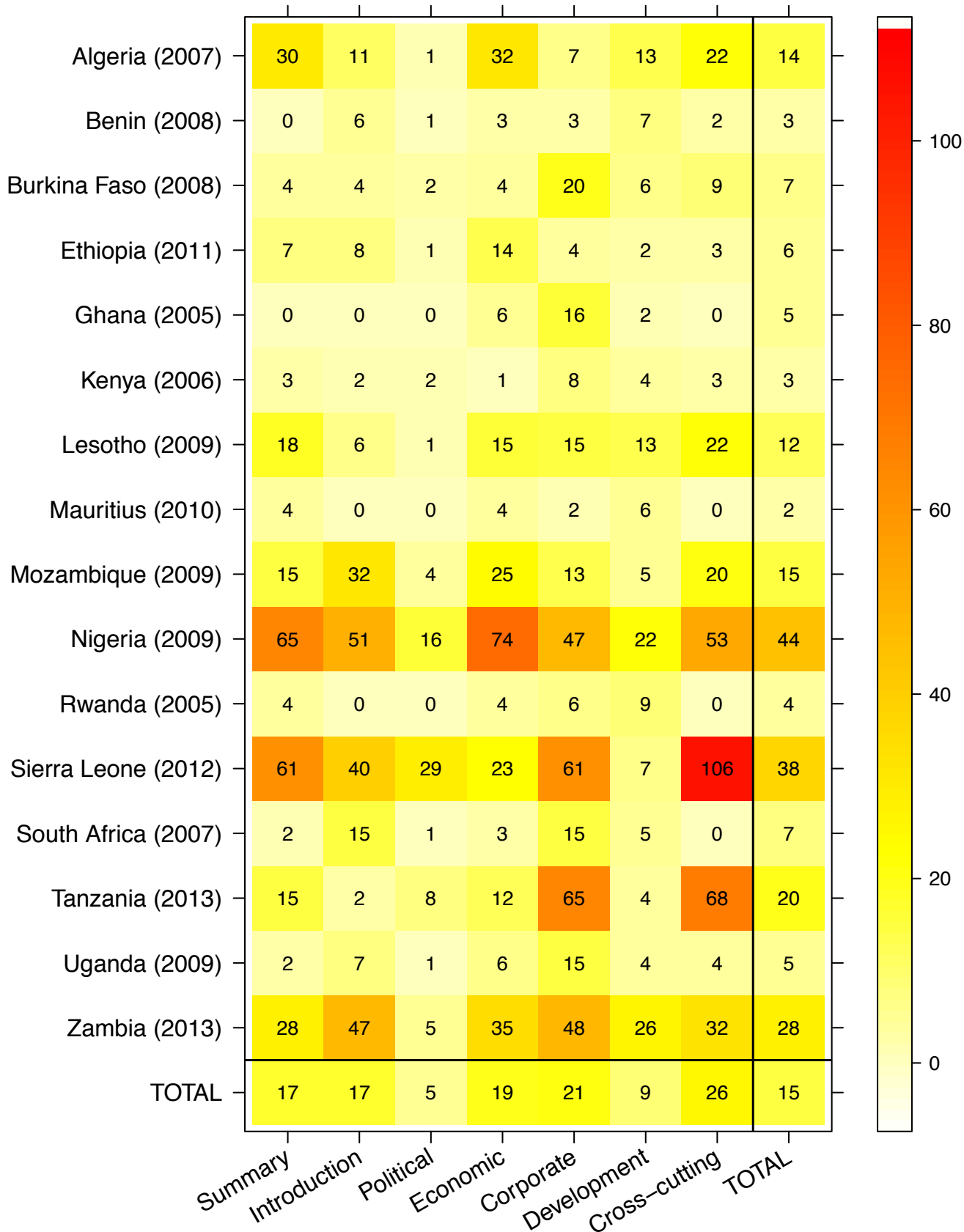
The extractive words in the three clusters appear on average 15 times per ten thousand words across all 16 reports. This average is shown in the bottom-right cell of Figure 1. Table 1 showed that the word clusters related to extractive industries occur 2 087 times in total. The combined word count of all the reports is about 1 400 000 words. The average

of 15 occurrences in the bottom-right cell is just the 2 087 occurrences divided by 1 400 000 total words and rounded to the nearest whole number.

One way to break down the treatment of extractive issues is by thematic chapter headings. The bottom row of Figure 1 presents the average word frequencies by chapter. It is useful to start by considering the chapters devoted to the four pillars of the APRM initiative – political governance, economic governance, corporate governance, and socio-economic developments – which, not coincidentally, are also the longest chapters. Within these chapters, the extractive words occur most frequently in the areas of ‘corporate governance’ (21 occurrences per ten thousand words) and economic governance (19). The corresponding figures for ‘political governance’ (5) and ‘socio-economic development’ (9) are much lower. The greatest emphasis is in the ‘Cross-cutting Issues’ chapters, with 26 occurrences per ten thousand words. Emphasis on extractive issues in the ‘Cross-cutting Issues’ chapters is very uneven, with the high average driven by a few countries with extremely high frequencies.

Another way to break down the treatment of extractive issues is by country. The far-right column of Figure 1 presents the average word frequencies by country. Nigeria has the highest frequency, with 44 occurrences per ten thousand words of text. Words related to extractive industries occur throughout the Nigeria report, especially the chapter on economic governance, reflecting the country’s heavy dependence on oil. Sierra Leone has the second-highest frequency (38). Words related to extractive industries occur throughout the Sierra Leone report, but the report is distinctive in the very high frequency in the ‘Cross-cutting Issues’ chapter and in the unusually high frequency in the ‘Political Governance’ chapter,

Figure 1
Frequency of extractive industry word clusters by document (occurrences per ten thousand words of text)



which discusses the role of ‘conflict diamonds’ in the country’s civil war and the importance of mining to post-war reconstruction. Zambia has the third-highest frequency (28). With an economy heavily dependent on mining, references to extractive industries are concentrated in the ‘Economic’ and ‘Corporate Governance’ chapters, focusing on the challenges of diversifying the economy beyond mining and on labour and environmental issues within the mining sector.

The interior cells of Figure 1 provide a more detailed breakdown of word frequencies within specific chapters of specific reports. By far the most frequent references to extractive industries are in the ‘Cross-cutting Issues’ chapter of the Sierra Leone report (106 occurrences per ten thousand words), which contains an extended section titled ‘Blessing and Curse of Mining and Minerals’. The next highest frequency is in the economic governance chapter of the Nigeria report (74), which states that ‘Nigeria exemplifies the ‘oil curse’ (Nigeria CRR 2009, p140) and goes on to discuss challenges of economic development, poverty reduction, and public finance stemming from oil dependence. Perhaps surprisingly, aside from Sierra Leone and Nigeria, the two chapters with the greatest emphasis on extractive industries are both in Tanzania’s report: ‘Cross-cutting Issues’ (68) and ‘Corporate Governance’ (65). The Tanzania review was done at a time of increasing foreign investment in mining and public debate over new mining laws. The heavy emphasis in the two chapters was, according to the report, driven by ‘stakeholder consultations’ that identified mining issues as ‘of grave concern across all four thematic areas’. Critics highlighted what they saw as ‘over-generous’ tax concessions to attract investment and weak regulation of the sector (Tanzania CRR 2013, p225).

Emphasis on extractive issues generally differs more sharply from country to country than

from chapter to chapter, but notable differences exist in both dimensions. Figure 1 represents this visually. Darker cells are concentrated horizontally in the rows representing a few country reports, though some vertical patterns are evident – for example, the columns for corporate and economic governance are darker than the columns for political governance and development.

ACCOUNTING FOR DIFFERENCES IN EMPHASIS

Why does emphasis on extractive issues vary from country to country and from chapter to chapter? In this section I investigate three possible explanations. The first focuses on country-to-country differences: reports on countries that rely more heavily on mining and oil might be expected to put greater emphasis on extractive issues. The second focuses on chapter-to-chapter differences: the conceptual framework behind the APRM reports might be expected to frame extractive issues within some themes more than others. The third focuses on changes over time: with the African Union and other regional organisations paying more attention to natural resource governance, more recent APRM country reports might be expected to put more emphasis on extractive issues.

Natural Resource Dependence

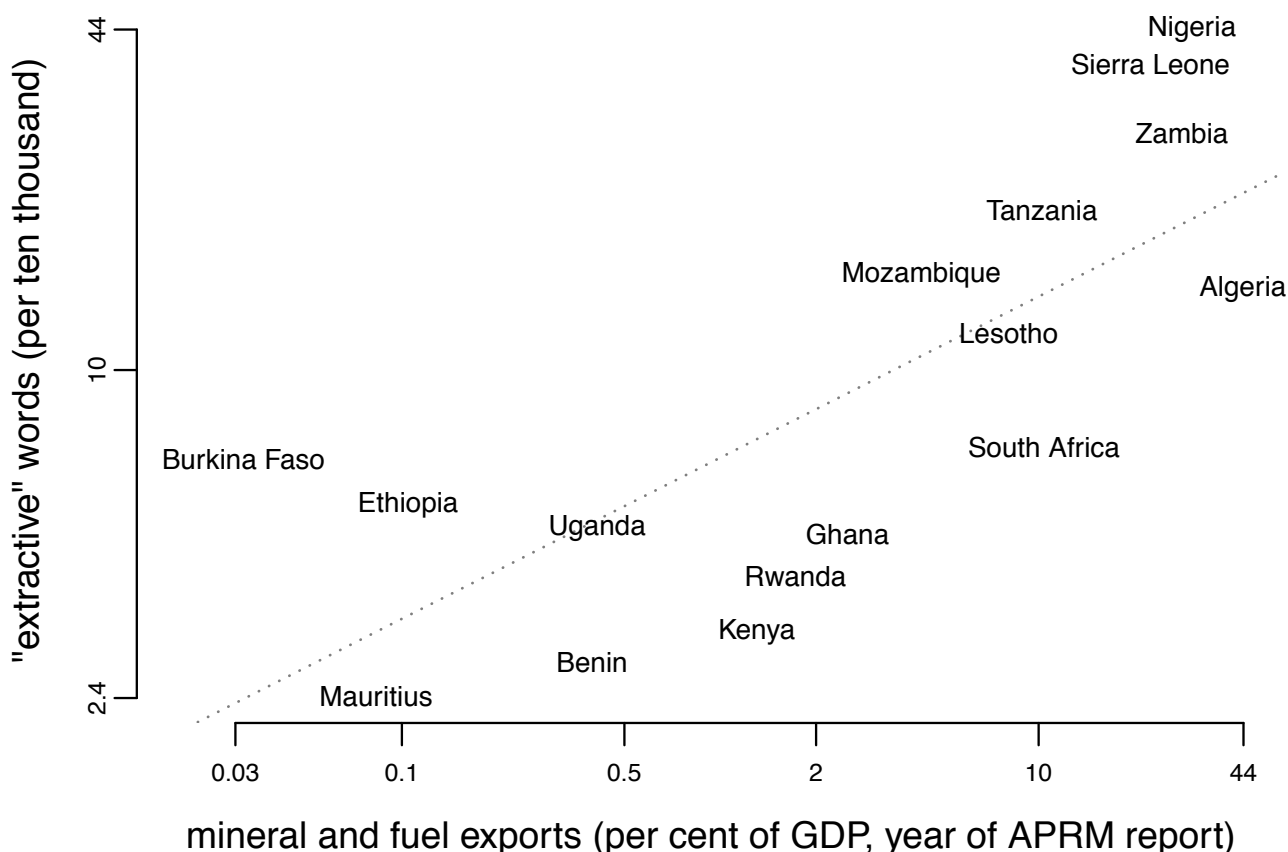
The emphasis on extractive issues might be expected to correspond with how heavily a particular country relies on resource extraction, with more emphasis in countries with larger extractive sectors and less emphasis in countries with smaller extractive sectors. This explanation looks persuasive at first glance: the three countries whose reports show the highest frequencies are all established resource economies – Nigeria, known for its oil; Sierra Leone, known for its diamonds; and Zambia, known for its copper. The country with the lowest frequency is Mauritius, known

for succeeding economically despite a lack of natural resources. Yet each of these examples is matched by a counter example. Nigeria is a leading oil exporter, true – but so is Algeria, and the Algeria report places much less emphasis on extractive issues. Sierra Leone and Zambia are established mining economies, true – but so are Ghana and South Africa, and their reports place much less emphasis on extractive issues. Mauritius derives very little income from mining and oil, true – but Burkina Faso derives even less, and its report places much more emphasis on extractive issues.

A more systematic examination of the relationship between natural resource dependence and emphasis on extractive issues in APRM reports shows that there is a clear positive association but that it is far from perfect. Figure 2 plots each country’s mining and fuel exports as a

percentage of gross domestic product (in the year of the APRM report) on the horizontal axis, and the frequency of the extractive words (per ten thousand words of text) on the vertical axis. (The axes are scaled logarithmically, so that distances between countries are in terms of ratios, not ‘raw’ differences. Exports are the total of ‘mineral and oil’ and ‘fuel’ from the World Bank (2015) and diamond gemstones from the Kimberley Process (various years).) Countries in the top-right are countries that depend heavily on resource exports and whose APRM reports contain frequent occurrences of extractive words. Countries in the bottom-left are countries that do not depend much on resource exports and whose APRM reports contain infrequent occurrences of the extractive words. The dotted line provides the best fit to the points. It slopes upward, confirming that greater resource dependence is associated with

Figure 2
Mineral and fuel exports and APRM emphasis on extractive industries



more frequent occurrences of the extractive words.

Despite the positive association between resource dependence and emphasis on extractive issues, Figure 2 highlights several anomalies. The country that depends most on resource exports is Algeria, but its country report places sixth in emphasis on extractive issues (14 occurrences per ten thousand words). The country that depends least on resource exports is Burkina Faso, but its report has greater emphasis on extractive issues (7) than those of seven other countries – just less than the continent’s leading mining economy, South Africa (also rounded to 7) and more than Ghana (5), a mining economy that has recently become a major oil exporter. The unexpectedly heavy emphasis in the above-the-line outlier of Burkina Faso probably reflects what its APRM report called an ‘excitement craze’ about new gold and manganese concessions, combined with concerns about a lack of environmental and other regulations (Burkina Faso CRR 2008, p243). The unexpectedly light emphasis in the below-the-line outliers of Algeria, South Africa, and Ghana probably reflects the fact that they were published before the APRM became sensitive to the importance of extractive issues. Overall, text mining confirms that there is generally more emphasis on extractive issues in the reports on countries that depend more heavily on mineral and fuel exports, despite some notable exceptions.

The APRM Reporting Framework

The extent to which extractive issues are concentrated under particular chapter headings might be expected to reflect the organisational process through which APRM teams compile reports. Country reports are drafted in three main stages: first, the government completes a self-assessment questionnaire and draft programme of action; second, the APRM team visits the country and consults with stakeholders

and third, the team drafts the report based on the government self-assessment and stakeholder consultation. Deliberations on the draft within APRM structures follow, and finally, the report is released publicly (NEPAD Secretariat 2003b). The questionnaire that guides the initial country self-assessment has sections for each of the thematic chapters of the reports and lists specific cross-cutting issues. The questionnaire’s structure might be expected to influence how different topics are mapped into chapters in the final report.

The self-assessment questionnaire centres on NEPAD’s four ‘core focus areas’ – ‘democracy and good political governance’, ‘economic governance and management’, ‘corporate governance’, and ‘socio-economic development’ (NEPAD Secretariat 2004). Cross-cutting issues ‘requiring systematic attention across all areas of the Questionnaire’ include poverty, gender, decentralisation, institutional capacity, access to information, corruption, participation, and sustainability (NEPAD Secretariat 2004, pp11-12). Each section of the questionnaire is divided into several ‘objectives’, with questions about what the country has done and performance indicators. The full questionnaire is 88 pages long, 70 of them devoted to the four focus areas. (The APRM adopted a revised and slightly more elaborate version of the questionnaire in 2012. It has the same basic structure but was not used in any of the reports published through 2013.)

Text mining shows that emphasis on extractive issues by chapter heading partly reflects the structure of the questionnaire. The only explicit mentions of mining or extractive industries in the questionnaire are included under ‘corporate governance’, related to issues of ‘sustainable environmental management’ by corporations (NEPAD Secretariat 2004, pp69-70). Among the four thematic chapters, Figure 1 confirmed that the extractive words clusters do appear most frequently under corporate governance

(21 occurrences per ten thousand words). They appear nearly as often in the economic governance chapters (19) though, despite the lack of explicit references to extractive industries in that section of the questionnaire. Emphasis on extractive industries in the economic governance chapters is driven heavily by the two major oil exporting countries, Nigeria and Algeria, along with copper exporter Zambia, which together account for 60% of total occurrences. Oil and copper exporters are similar in that they are exposed to unusually large fluctuations in world prices. These fluctuations pose challenges of macroeconomic instability and economic diversification, central themes in the economic governance chapters of the reports of these three countries.

A lack of emphasis on extractive industries in the chapters on 'political governance' (5) and 'socio-economic development' (9) is puzzling given concerns about the adverse political and developmental consequences of natural resources, but it may also reflect the structure of the questionnaire. Research on the resource curse originated from the observation that economies dependent on mining grow more slowly, a factor attributed to economic mechanisms such as overvalued exchange rates and slow productivity growth (Frankel 2010; Sachs & Warner 2001). More recent research has widened its focus to a broader range of development outcomes and has highlighted the importance of political institutions that support stable and accountable governance (Bhattacharyya & Hodler 2010; Collier & Hoeffler 2009; Jensen & Wantchekon 2004; Mehlum, Moene & Torvik 2006). Yet the chapters on political governance and development contain very sparse discussions of extractive issues. Many occurrences of the extractive words in the political governance chapters are concentrated in the reports on Sierra Leone (29 per ten thousand words) and Nigeria (16) and many occurrences in the development chapters are in the reports on Zambia (26) and Nigeria (22).

Extractive industries are not entirely confined to the chapters on corporate and economic governance. The reports mentioned above – those on Nigeria, Sierra Leone, and Zambia – are examples of the words occurring frequently across several thematic chapters. Extractive issues not only 'cross-cut' several chapters, they also occur frequently in the chapter specifically devoted to 'cross-cutting issues'. The Tanzania report is also notable for its high frequency of extractive words in the 'Cross-cutting Issues' chapter, though most occurrences within the thematic chapters are confined to corporate governance. The 'Cross-cutting Issues' chapter for Tanzania contains an entire section titled 'Management of Natural Resources and Inclusive Growth for Sustainable Development' (Tanzania CRR 2013, pp225-228). Such heavy emphasis in the 'Cross-cutting Issues' chapters of some country reports cannot be attributed directly to the self-assessment questionnaire, as the questionnaire does not explicitly list resource extraction one of the cross-cutting issues requiring 'systematic attention' (NEPAD Secretariat 2004, pp11-12). Where extractive issues do emerge prominently, it is because the APRM panel took the initiative to identify them as crucial to governance and development in particular countries.

Overall, text mining shows that the reports concentrate their discussion of extractive issues in the 'Corporate' and 'Economic Governance' chapters, which also means that they neglect these issues in the 'Political Governance' and 'Development' chapters. This pattern corresponds with the APRM reporting framework, in particular the self-assessment questionnaire that guides the reviews. Yet the pattern is far from universal. Some country reports emphasise the political and developmental aspects of resource extraction and some treat resource extraction as an important cross-cutting issue. While the questionnaire influences the collection of information, text mining reveals considerable flexibility in how the reports are compiled.

Evolving Ideas About Extractive Industries And Governance

The extent to which the country reports emphasise extractive issues might be expected to reflect evolving ideas about the relationship between extractive industries and governance within the APRM and regional organisations. The first APRM country reports were published in 2005, the most recent in 2013. During this period concerns about natural resources and development have intensified and been extended to a broader set of governance issues. These trends might be expected to affect the content of the reports, with more recent reports placing greater emphasis on and giving broader treatment to extractive industries than earlier ones did.

Attention to extractive industries within Africa-focused international and regional organisations has certainly grown since the APRM's inception. A turning point came in about 2008, when the African Union and the UNECA established a technical team to draft the Africa Mining Vision. The resulting document, which the African Union adopted in 2009, explicitly acknowledged the APRM as an important tool for promoting developmental governance and explicitly called for the APRM to add a 'natural resources chapter' to its country reports (African Union 2009, p 31). When the APRM revised its questionnaire in 2012 it did not include such a chapter. But the revised questionnaire gives much greater prominence to extractive issues than the original questionnaire did. It contains two questions (and several indicators) about 'the extractive industry sector' and 'measures taken . . . to regulate and promote the governance' of it (NEPAD Secretariat 2012, pp41-42). It also contains a sub-question in the political governance section about the role of oil and mineral resources as 'potential sources of conflict' (NEPAD Secretariat 2012, p17). The revised questionnaire has yet to be used in country reviews, but the changes show

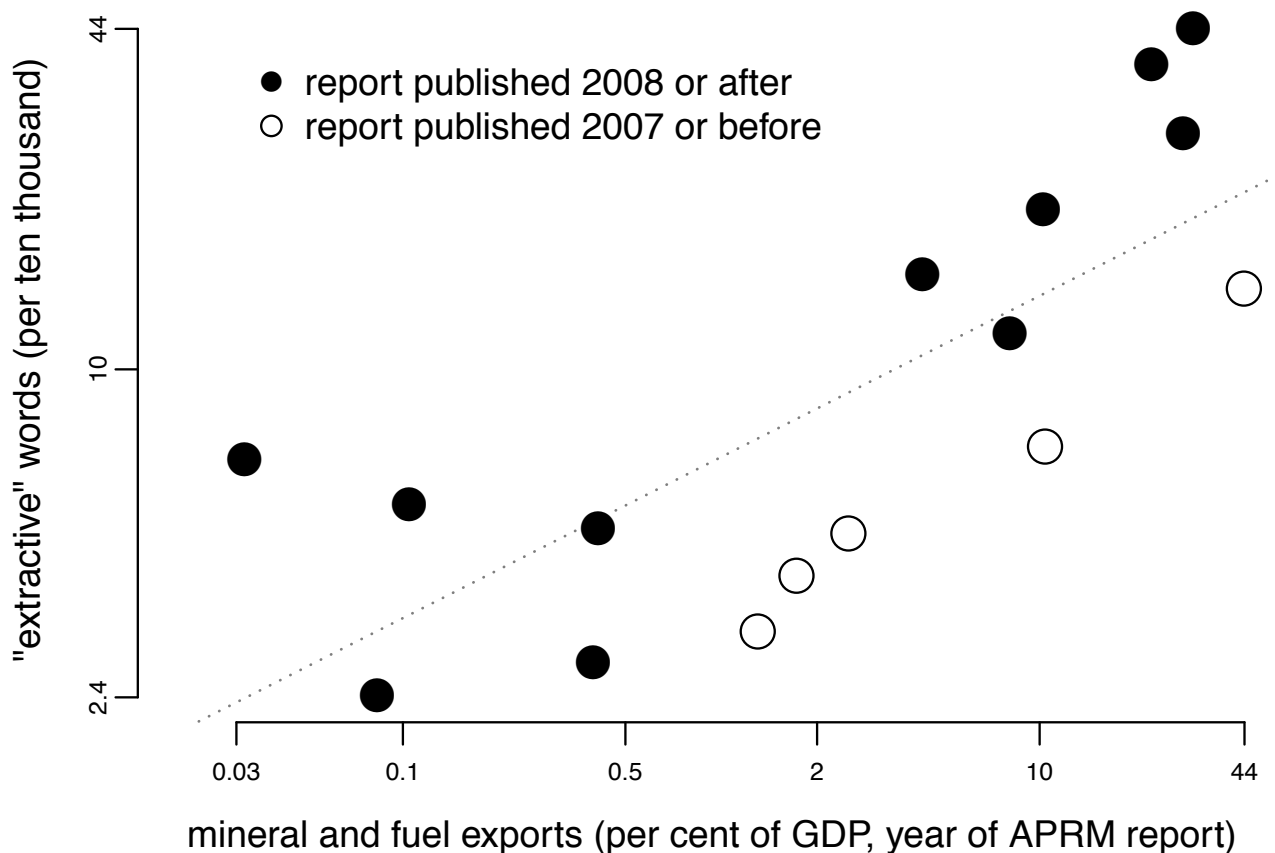
expanded awareness of extractive issues within the NEPAD Secretariat and the APRM process.

This expanded awareness is reflected in the frequency with which extractive words appear in the APRM reports and in their broader spread across chapters. The turning point seems to be about 2008, with extractive words appearing more often and more broadly in reports published from that year on. Figure 3 shows the pattern. It repeats the content of Figure 2 except that it replaces the country names with dots that are solid or hollow depending on when the reports were published: solid dots for the 11 reports published in 2008 or after, and hollow dots for the five reports published in 2007 or before. (Figure 1 lists the year of publication of each report.) The same dotted line as in Figure 2 marks the tendency for countries with greater mineral and fuel exports to use more extractive words in their reports. Countries with more occurrences than 'expected' based on their mineral and fuel exports are above the line, and countries with fewer than 'expected' occurrences are below the line.

Splitting the reports between those published earlier and later reveals two clear patterns. The first is that the hollow dots representing the earlier five reports, which include leading resource economies like Algeria (farthest right hollow dot) and South Africa (next farthest right hollow dot), all fall well below the line. Attention to extractive issues in these early reports is consistently lower than expected. The solid dots representing the later reports are mostly above or near the line. (A minor exception is Benin, a resource-poor country – mineral and fuel exports just below 0.5% of GDP – whose report was published right around the 'turning point' in 2008.) The second pattern is that the hollow dots, despite all being below the line, form an upward-sloped pattern similar to the dotted line. This means that though the early reports placed less emphasis

Figure 3

Mineral and fuel exports and APRM emphasis on extractive industries - by publication date



on extractive issues across the board, reports of countries that depend more heavily on mineral and fuel exports did place greater emphasis on extractive issues. For example, the reports on Algeria and South Africa seem to place surprisingly little emphasis on extractive issues when compared with all of the other reports, as in Figure 2, but their emphasis looks high when compared only with the other 'early' reports, the hollow dots in Figure 3.

The frequency of extractive words has increased substantially in more recent reports, and this increase has been accompanied by a broader spread across chapters. Extractive words occur about two and half times more often in reports published since 2008 (even adjusting statistically for country-to-country differences in resource exports). The broader spread is confirmed by the increasing probability that two random occurrences of extractive words in a report fall in different chapters. The probability

is high if extractive words are spread broadly across chapters, low if they are concentrated in a few chapters. Text mining confirms that thematic 'diversification' in the APRM's analysis of extractive issues over time: the probability in the first five reports averages 65%, while the probability in the more recent eleven reports averages 77%.

In sum, the APRM's treatment of extractive issues has evolved substantially, with more recent reports placing greater emphasis on extractive issues and 'diversifying' their treatment of them thematically across chapters.

WHAT THE APRM SAYS (AND DOESN'T SAY) ABOUT EXTRACTIVE INDUSTRIES

Africa's abundant mineral and fuel resources can be an asset in the quest for inclusive and sustainable development, but researchers and policy experts have come to recognise that

governance is crucial in determining whether resources are a blessing or a curse. Research into the resource curse initially had a narrow economic focus, but now the natural resources are seen to be linked to broader challenges like consolidating democracy, achieving accountable and transparent governance and averting violent conflict. Initiatives like the Africa Mining Vision show that regional organisations and policy experts are paying increasing attention to extractive issues. They portray Africa's extractive industries as, at best, lucrative enclaves that historically have done little to promote industrialisation and reduce poverty, while imposing heavy social and environmental costs. This history, they argue, can be turned around through an overhaul of the policy framework for resource extraction.

Against the backdrop of growing awareness of the importance and complexity of resource extraction, at first glance the treatment of extractive issues across the 16 APRM country reports might seem underwhelming. Text mining revealed that words closely associated with extractive industries only occur about 15 times per ten thousand words of text, which amounts to roughly one paragraph of analysis per 30 pages of double-spaced, typed text. Not only is the treatment sparse on average, it is thematically narrow. References are concentrated in the chapters on corporate and economic governance, and they are conspicuously absent from the chapters on political governance and socio-economic development. In the reports on leading resource economies like those of Algeria and South Africa, occurrences of extractive words fall below the 16-country average. The neglect of extractive issues might even seem to be by design, as the APRM country self-assessment questionnaire hardly mentions natural resource extraction.

More careful analysis of the text mined from the APRM reports reveals more encouraging patterns. The most important patterns are a substantial increase in the emphasis on extractive issues and a substantial broadening of their treatment to span major themes of governance and development. For example, the highest frequency of extractive words is found in the Nigeria report of 2009, which contains an extended discussion of the 'oil curse' and the challenges it poses for macroeconomic stability and public finance, prescient in light of the plunge in global oil prices beginning in 2014. The Sierra Leone report of 2012 broke with its predecessors in addressing extractive issues, particularly 'conflict diamonds', as crucial to political governance, and it highlighted how mining can contribute to post-conflict reconstruction. The Zambian and Tanzanian reports of 2013 also emphasise extractive issues. This emphasis reflects strong input from civil society about the importance of regulating the mining sector and making sure it serves broader development goals. Deeper analysis of text data shows that the APRM's treatment of extractive issues has evolved markedly over time, with much greater emphasis and analytical sophistication in more recent reports.

These promising trends seem to have emerged pragmatically out of growing awareness within APRM review processes of the governance and development implications of resource extraction. The revised APRM country self-assessment questionnaire will help to institutionalise a more sophisticated approach to extractive issues in any future APRM reviews. It calls upon governments, civil society and APRM panels to grapple with how extractive issues cross-cut governance and development, with the flexibility to attend to country characteristics. Future reports will inevitably have shortcomings, but they are also likely to continue to serve as barometers of thinking about Africa's extractive industries.

LESSONS LEARNED

Text mining the country reports has helped to identify encouraging trends in the APRM's approach to extractive issues. The following three points highlight lessons that emerge for participants in and observers of the APRM process.

'Good governance' is a moving target

The question of what makes for 'good governance' has been at the heart of political theory since at least the days of Plato and Aristotle. The fact that it persists without a definitive answer is not a sign of the futility of political theory, it is a reminder that as the world changes people's thinking about the best way to govern themselves must also change. In the decade since the first APRM report was published, researchers and policy experts have become more attentive to governance and development challenges related to natural resource extraction. Rather than clinging to preconceived institutional templates, APRM reports have evolved to provide more thorough and sophisticated analyses of extractive issues. What 'good governance' of resource extraction entails has been a moving target. This is a strength, not a weakness – a lesson that generalises to other issue-areas.

'Good governance' is a contested target

The APRM provides a voluntary forum within which civil society organisations and other stakeholders can engage under the auspices of a regional body. Such engagement sometimes leads to greater consensus, but not always. In any case, contestation in itself enriches the understanding and pursuit of 'good governance'. Promising trends in the APRM's approach to extractive issues owe much to the consultative nature of the review process. The APRM is premised on the idea that participatory and accountable governance is an essential condition

for development. 'Good governance' of resource extraction has been a contested target, and civil society organisations and other stakeholders have, for example, at times criticised the actions (or inaction) of governments. This contestation is a strength not a weakness – another lesson that generalises to other issue-areas.

'Good governance' of extractive industries is a (thematically) 'diversified' target

The APRM has moved toward a more analytically 'diversified' approach to the way in which resource extraction cross-cuts themes of governance and development. Early reports framed extractive issues mainly in terms of corporate and economic governance, with little reference to political governance and development. The revised self-assessment questionnaire reflects the more diversified approach, spreading extractive issues across thematic chapters, also rejecting the idea of relegating them to the analytical 'enclave' of a standalone chapter. Still, some extractive issues raise sensitivities for governments, particularly issues relating to political accountability and corruption. APRM panels and civil society can help to ensure that future reviews address the broad spectrum of challenges related to resource extraction, avoiding the temptation of returning to a narrower focus on 'technical' aspects of corporate and economic governance.

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ANNEXURE A

Method of deriving 'heatmap' graphics from APRM Country Research Reports using word stemming and clustering

Grant Masterson and Rod Alence

Each APRM country review culminates in a book-length report. Given the way these reports are compiled, and their proven accuracy and reliability in identifying critical governance issues in APRM member states, they warrant further examination. However, the length and technical language of the reports is often cited as a major obstacle to broader levels of engagement with their content. To address this, the Electoral Institute for Sustainable Democracy in Africa (EISA) piloted a text-mining methodology to simplify and disaggregate specific issues from the reports in a manner which, hopefully, enhances their utility.

Text mining reduces the reports to 'bags of words', whose frequencies can be analysed statistically. The first step was to capture the text from the 16 reports electronically and to 'clean' it – by, for example, removing all punctuation and numbers and deleting page headers and footers. Next the text was summarised in a word-frequency matrix showing how often each word occurs in each chapter of each report. Using this full list of words, paper authors compiled a list of words usually associated with their specific paper topic. For example, in the paper on 'Extractives and Mining', words pertaining to mining, oil, and resource extraction were conceptually grouped together under these three umbrella terms.

This allowed the paper authors to calculate the frequencies of these specific concepts within each chapter of each report. The frequencies, as raw word counts or as counts normalised

per ten thousand words of text, provide rough indicators of the degree of emphasis on the paper's key concepts. Note: Each time any of the grouped words is flagged in the text a result is returned as an instance of the main concept word (see Table 1).

The analysis is aided by the fact that all the APRM country reports have similar structures. All contain four core thematic chapters on key themes of the APRM: 'democracy and political governance', 'economic governance and management', 'corporate governance' and 'socio-economic development'. These core chapters are preceded by an introductory discussion of the APRM process and country background. In early reports the introductory material occupied a single chapter, but in later reports it spans two chapters. For ease of comparison, where it occupies two chapters the text is combined into a single document, called 'introduction' and treated as a single chapter. The core thematic chapters are followed by a concluding discussion of 'cross-cutting issues', findings, and recommendations. In early reports this concluding material occupied a single chapter, but in later reports it spans two chapters. Again, where it occupies two chapters these were combined into a single document, called 'cross-cutting issues' and treated as a single chapter. Each report also starts with an executive summary, which is treated as a chapter in its own right. All other front matter and appendices are excluded from the analysis.

Except for the first few reports published the word counts are reasonably consistent. The first two reports, on Ghana and Rwanda, are quite short, averaging only 36 000 words. The third, on Kenya, is 75 000 words. The average length of the other 13 reports is 99 000 words, with nine falling between 90 000 and 110 000

Table 1
Paper topics and key concept terms by paper

Subject of paper	Author	'Concept' words (example)	Grouped words linked to 'concept' word
Land and the APRM	Lisa Van Dongen	Land	land landless
Gender and the APRM	Jacqui de Matos Ala	Female	female females girl girls woman women womens*
Extractives, Mining and the APRM	Rod Alence	Minerals	mineral minerals miners mines mining diamond diamonds gold tin coal aluminium copper iron quarrying
Elections, Conflict and the APRM	Michelle Small	Election	elect elected election elections elective electoral electorate vote voted voter voters votes vote voted voter voters votes voting

Subject of paper	Author	'Concept' words (example)	Grouped words linked to 'concept' word
Youth and the APRM	Melanie Roberts	Youth	youth
Government Responses to the APRM	Grant Masterson	Executive	Cabinet executive minister ministerial ministers ministry president Primeminister*

*punctuation is removed from the text to avoid data confusion prior to running the analysis.

words, and the longest two being Mozambique (117 000 words) and Nigeria (114 000 words). The four thematic chapters account for nearly two-thirds of each report, averaging 65 000 words. Among these, 'democracy and political governance' is longest, averaging 21 000 words; the average in the other three – 'economic governance', 'corporate governance', and 'socio-economic development' – is slightly more than 14 000 words. The average number of words in the remaining chapters – 'executive summary', 'introduction', and 'cross-cutting issues' – is about 8 000 words.

The combined word count of all 16 reports (excluding front matter and appendices) is about 1 400 000 words. Three pages of typed, double-spaced text in a standard font equals about a thousand words. Using this as a rough approximation, the text analysed is roughly equivalent to 4 200 typed, double-spaced pages.

The final heatmaps illustrate the intensity of word occurrences by country and by chapter. The higher the frequency with which a word appears in a chapter, the darker that block will

appear. Country chapters with dark red blocks are therefore those with the highest frequency of a word, while those with very pale yellow blocks have no or almost no references to that word. The use of the heatmaps themselves allows for a unique and otherwise unattainable perspective on the contents of the 16 APRM Country Reports analysed. It is possible to identify trends in the occurrences of key concept words in the reports and, due to the thematically arranged structure of the reports, this provides the reader with additional perspectives on the context in which these words are being referenced.

However, caution should be exercised in reading too much into the heatmaps themselves. The brief given to all the authors in this series of papers was to view the heatmaps as an indication of which APRM Country Reports, and specifically, which chapters, warranted further examination with respect to the theme of the paper. The heatmaps are useful insofar as they point a researcher in the direction of interesting trends as well as unexpected (or expected) anomalies and outliers in terms of

the referencing of a word within the reports. It is not possible to deduce the content of the reports from the heatmaps, simply which sections of which reports warrant specific referencing when examining specific issues such as those in this Occasional Paper series.

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