

Development of Environmental Impact Assessment in Brazil

Luis E. Sánchez

Entwicklung der Umweltverträglichkeitsprüfung in Brasilien

Brazilian environmental impact assessment regulations came into force in 1986 and practice has been evolving ever since. Environmental impact studies are submitted to environmental agencies, entitled to grant licenses and to enforce EIA procedures. The most important control embedded in the Brazilian legislation is the administrative control exerted by these agencies. Advancements are noteworthy, but implementation remains very uneven among states. A unique feature of EIA in Brazil is the external control role played by the Prosecutors Offices. Demonstrating EIA value to society, i. e. that it conveys actual (and, ideally, measurable) benefits, is an emerging challenge in Brazilian practice.

Abstract

Seit ihrer rechtlichen Implementierung 1986 entwickelte sich die brasilianische Umweltverträglichkeitsprüfung in ihren prozessualen und inhaltlichen Grundzügen, wie wir sie auch in Deutschland kennen. Allerdings sind es unmittelbar die Umweltbehörden, die für den Vollzug der UVP und für die Erteilung etappenweiser Umweltlizenzen für Projekte zuständig sind. Fortschritte in der UVP-Praxis sind seitdem unverkennbar, auch wenn der UVP-Vollzug noch ein starkes Gefälle unter den brasilianischen Bundesstaaten aufweist. Eine einzigartige unabhängige Kontrollinstanz stellen die sogenannten Staatsanwälte des Ministério de Público dar. Eine aktuelle Herausforderung besteht darin, den – möglichst messbaren – Mehrwert der UVP in Brasilien herauszuarbeiten.

Zusammenfassung

Environmental impact assessment; Environmental licensing; Environmental agencies; Brazil

Keywords

Projekt-Umweltverträglichkeitsprüfung; Umweltgenehmigungen; Umweltbehörden; Brasilien

Schlagworte

A Brief History of EIA Implementation

The first mention of environmental impact assessment (EIA) in Brazilian legislation can be traced back to the December 1977 regulations of a Rio de Janeiro State law enacted in 1975. In that decade, State laws requiring a license for pollutant sources had been established in both Rio de Janeiro (1975) and São Paulo (1976) states. Staff at the Rio de Janeiro environmental agency saw an opportunity to introduce EIA requirements by tying them to the existing pollutant permit system. Having emerged from a "bureaucratic initiative" (Wandersforde-Smith & Moreira 1985), however, EIA did not meet great success as the discretionary power to require an EIA was used only twice between 1978 and 1983.

At Federal level, the first mention of EIA is to be found in a law enacted in July 1980 aimed at establishing zoning requirements in "critical pollution areas". But, effective legal support for EIA appeared in August 1981, when Congress passed the National Environmental Policy Law, listing EIA as one of its "tools". Enforcement was delayed until regula-

tions were published, in June 1983, when a Federal decree established general regulations under the law. Under this regulatory decree, EIA is necessary for environmental licensing (a link not clearly established in the law), a task attributed primarily to the states with federal government acting only on a supplementary basis. Hence, every state had to create its own specialized departments or to establish new units within existing organisms, such as health departments, to review environmental licensing applications.

These dedicated departments, known as "environmental organs" (hereafter called environmental agencies) are vested with the power of approving new projects and the expansion of existing undertakings, overriding other government authorizations. Thus, initiating a number of activities requires an environmental license independent from sectoral approvals, such as those needed for mines, dams etc., and granted by a separate government organization, the environmental agency. The legislation adopted a tiered licensing system, whereby the approval of an environmental impact study (EIS) grants a prior li-

cense, while additional planning information (essentially, an environmental management plan) has to be filed to require a construction (called installation) license. Upon completion, an operation license is granted for no more than ten years (usually less), requiring renewal.

Specific EIA regulations came into force only in January 1986, when the National Council on the Environment (CONAMA), a new body created by the 1981 law, approved Resolution 1/86 setting the basic components of the Brazilian EIA system, "after protracted negotiations between environmental organizations and other governmental sectors" (Moreira 1988: 251). More important is that political momentum allowed for EIA to be embodied in the new Federal Constitution of 1988. Article 225 requires an EIS to be prepared for all undertakings capable of causing significant environmental degradation.

A firm position taken by some of these new environmental agencies in a few emblematic cases contributed to strengthen the new tool. In the Rodovia do Sol case, a new highway proposed to link the industrial highlands to the relatively pristine northern coastal zone in

São Paulo, had its license denied in 1989. The review carried out by the state environmental agency reached a conclusion on the "environmental unfeasibility" of the project, based on information presented in the EIS (CONSEMA 1993). In Minas Gerais State, the environmental agency denied a license to expand the Arafertil phosphate mine encroaching over a recreational area and later refused to approve a new sulfuric acid plant proposed by the same company.

Federal involvement in EIA took time to take off, largely because the 1983 decree restricted its role. However, a number of controversies arose, including lawsuits challenging state jurisdiction. One such case was brought before the courts in 1994 against the licensing of the new dam project Tijuco Alto, which, located on the border between São Paulo and Paraná had been approved by environmental agencies. The courts upheld the environmentalists' position that the project should be subject to federal approval. As a matter of fact, at the time of writing (September 2013), no decision has been made on this project.

Another development was the ability of some local governments to deliver environmental licenses, but so far only capital cities and a number of large municipalities do exert their licensing activities. A 2009 survey found that 6 % out of 5500+ municipalities had an operating environmental licensing system, but 70 % of this group was in Rio Grande do Sul, where state government had been promoting a policy of transferring powers to local governments. A Federal law enacted in 2011 (Complementary Law 140) aimed at clarifying the respective roles of federal, state and municipal governments. These are entitled to license projects causing "local impacts", which in many cases preclude the preparation of an EIS. In summary, a key aspect of Brazilian EIA is the prominent role played by the environmental agencies, vested with the power to approve projects and to establish their terms and conditions.

Main Components of the EIA Process: Development, Consolidation and Current Practice

The following section presents a brief review of the main components of the EIA process, featuring current practice in Brazil and highlighting significant changes in relation to early practice.

Screening

The selection of projects submitted to the preparation of an EIS is guided by the constitutional provision of potentially significant environmental degra-

ation. Practice is still largely guided by the positive list featured in CONAMA Resolution 1/86. That different levels of detail in environmental studies could be appropriate to inform decision-making was not foreseen by the regulation, but since the early years it became clear for a number of government officials, academics and consultants that for all practical purposes, requiring a full EIS for small undertakings was damaging the very reputation of EIA and diverting government resources simply to prescribe standard control measures to recurrent situations. Initiatives to devise a proportional approach to EIA (i. e. requiring more detailed studies for complex projects) started as early as in December 1990, when CONAMA determined that sand and clay pits and small quarries could be waived of an EIS at the discretion of the competent environmental agency, in which case a simpler assessment should be prepared, named environmental control report.

Since then, several federal and state regulations have defined criteria for requiring what is generically called environmental studies, lower level or simplified environmental assessments. An early move was taken in São Paulo, when the State Department of Environment approved the recommendations by a committee of members of the State Council on the Environment to introduce amendments to the EIA process in December 1994. These new regulations (State Resolution 42/94) introduced an initial evaluation report called preliminary environmental report which, after review and approval, could lead to a prior license. Concerns about projects of significant impacts being "fast-tracked" for approval instead of enduring a full EIA process were voiced (Kirchoff et al. 2007).

Scoping

Scoping was not defined by the CONAMA regulation as a mandatory step, but it opened up the possibility for the competent environmental agency to issue "additional guidance" to each EIS, considering project and area characteristics. Once again, practice showed that a structured approach for scoping was necessary. Rio de Janeiro had its own procedures, establishing that the environmental agency should guide the preparation of every EIS by issuing "technical instructions".

In São Paulo, formal scoping was introduced by the December 1994 regulations. They call for every EIS to be preceded by issuing tailored terms of reference (ToR) by the agency. The process starts when the proponent files a draft "working plan", which is reviewed by

the agency and, after public consultation, informs the agency in the preparation of the ToR. Besides aligning the state procedures with international good practice, a significant innovation was the expansion of public consultation to the scoping phase, unfortunately discontinued.

Currently, every EIS in the Federal system must follow a ToR, but the practice is not universally adopted by state and local environmental agencies and although research on scoping is limited (Borioni 2013), the perception of experienced practitioners seems to converge that most ToR are generic and do not incorporate learning from previous experiences. A review of Brazilian EIA practice by the World Bank in 2008 also found the low quality of ToR to be of outstanding concern (Sánchez 2010a).

EIS Preparation

The 1986 regulations called for an independent multidisciplinary team to prepare environmental impact studies. Hence, proponents were required to hire consultants to review their projects and write the studies. Since this period, the quality of EISs has been under scrutiny. Academics and NGOs criticized the studies for failing to present accurate baseline (Fonseca 1998), for featuring biased analysis (Fearnside & Barbosa 1996) and for overlooking regional impacts and not considering project alternatives (Monosowski 1991), among other deficiencies. Some practitioners deplored that an "industry of the EIS" was developing, where fast track and cut-and-paste style studies were produced at low cost by unscrupulous professionals. Observers lamented that insufficiently staffed government environmental departments were causing undue delays in project approval.

A number of studies reviewed single case or a small number of EIS, identifying their shortcomings, but the biggest sample is to be found in a systematic review of 80 EISs by technical staff at the Office of the Federal Prosecutor (MPF 2004). Acknowledging that the sample could be biased towards the lower side of the scale because all reviewed cases were considered for possible lawsuits, the study documented a number of recurrent deficiencies, such as baseline data not used for impact analysis or mitigation design, poor impact identification and biased determination of impact significance.

A content analysis of a sample of EIS prepared between 1987 and 2010 for mining projects was undertaken by Landim & Sánchez (2012), who found that both the contents and the scope of the EISs have been widening and deepening

over time, particularly in terms of level of detail of and issues dealt with in baseline studies. Also, mitigation measures have become structured along a consistent framework, as compared to a list of loose non-auditable commitments featured in early reports. As EIS became more sophisticated, the main drivers of evolution were identified as new legislation, followed by better regulation, administrative control exerted by the environmental agencies and improved consultants' capacity.

Public Consultation

Public consultation is certainly the component of the EIA process more in need of improvement these days. At its origin, the requirement to conduct a public hearing was a novelty perceived by some as entirely revolutionary. Neither the political tradition nor the legal system allowed for any form of public participation in government decision-making. The 1986 CONAMA regulations on EIA called for a public hearing to be conducted while its regulation on public hearings (Resolution 9/87) was strongly opposed by sectors in the government and came into force only in 1990. In early public hearings, proponents tried to avoid meaningful participation by e. g. choosing inconvenient locations (Mirra 2006) and filling in rooms with their own employees. Yet, Ferrer (1998), reviewing 40 public hearings held in São Paulo in the period 1988 – 1996, found active involvement of NGOs, highly variable attendance (with a peak of about 1,000 in the above mentioned Rodovia do Sol case) and meaningful substantive debate.

Now public hearings are undisputed official events, but no-one seems to be entirely happy with their format, while doubts about their outcomes and actual influence on decision-making are voiced. Attendance varies from a handful of locals to a few thousand, like the 2,300+ citizens that in October 2011 registered as participants in the hearings of Porto Sul, a controversial harbor development in Southern Bahia State. Notwithstanding, discontentment is perceived by environmental analysts (as officers working for environmental agencies are known), who observe politicians overtaking the hearings, consultants and proponents making biased presentations or citizens taking the opportunity to express anger towards government policies unrelated to the project or its impacts.

The hearings are preceded by a period of public availability of the EIS and its nontechnical summary, known as RIMA, an acronym for environmental impact report. Besides providing physical

copies of the EIA and the RIMA, a number of states and the Federal agency IBAMA publicize these documents in the internet. In addition to oral submissions in the hearings, citizens may send written comments during the public review period.

EIS Review

The most important control in the Brazilian legislation is the administrative control exerted by each environmental agency. Advancements are noteworthy since EIA came into force, but implementation remains very uneven among States. Retaining qualified staff is a major challenge that directly influences quality of review. In contrast to most states, IBAMA has been able to strengthen its capabilities and featured, by mid-2013, about 380 civil servants dealing with licensing, a majority in its central Environmental Licensing Division.

A shortcoming that affects both EIA preparation and the review phase is the virtual absence of technical guidance both at state and federal levels. Coupled with deficiencies in ToR, there is ample room for contradictory interpretation of the adequacy of an EIS, which is largely dependent on personal professional judgments. A review report is prepared by the staff containing recommendations for decision-making. Easy public access to these reports is not granted in many states, but at IBAMA and in some states they have systematically been uploaded to internet portals.

EIS review leads to a prior license being granted. In order to overcome the next stage (the installation license), a proponent must file an environmental management plan (whose official denomination varies among states, basic environmental project being a usual term). The existence of this second licensing stage, coupled with the general lack of technical guidance, leads to a wide variation in the appraisal of EIS adequacy to the point that, on occasions, parts of field surveys are postponed and included as a condition to be complied with at the installation licensing phase, an approach criticized in a number of reviews of EIA practice in Brazil.

Review results in the vast majority of projects being recommended for approval but subject to terms and conditions established in the environmental license. It is very rare that a project is approved exactly as described and subject only to mitigation proposed in the EIS. Instead, additional conditions result from the review phase and become mandatory. Occasionally, proponents may find such conditions unacceptable or too expensive.

Decision-making

Decision-making varies among jurisdictions. Several states have Environment Councils hosting representatives of civil society organizations, business and different governmental departments. Those councils act as decision-making authorities, approving licenses and their terms and conditions. On the other hand, in the federal process, as well as in those states not featuring an Environment Council, the environmental decision is made by the environmental agencies. The latter model puts the responsible person under tremendous political pressure, while under the former approach, responsibility is diluted among council members (although governments usually have a majority of votes).

Although license refusals are relatively rare events, a number of cases are documented in the literature, such as Pilar dam in Minas Gerais (Devlin & Yap 2008), Ipueiras dam in Tocantins (World Bank 2008), a quarry (Dias & Sánchez 1999) and several projects in São Paulo (Lima et al. 1995). In contrast, project modification as a result of EIA is the most common scenario. So far, there is insufficient research or documentation to provide a clear picture about the effect of such modifications in terms of environmental protection achieved. A recent federal case illustrates EIA contributing not only to reduce harmful impacts but also project costs: the project of a shipyard in Alagoas State that had its license refused in June 2012 was totally reformulated and, after reapplying, obtained the prior license in July 2013. The revamped project, proposed for an alternative location, resulted in 80 % less dredging compared with the initial proposal as well as in reduced destruction of coral reefs.

Follow-up

The post-decision phase used to be the weakest link in the EIA chain (Dias & Sánchez 2000) but improvements have been observed. Environmental supervision, an arrangement by which the proponent hires a third party to continuously monitor compliance during the construction phase is now usual for most large and medium-scale undertakings. Early experience during the construction of Imigrantes highway (1999-2002), a project crossing a steep slope area within a State Park in the Atlantic rainforest, demonstrated that a strict follow-up could prevent major environmental damage and trigger corrective actions to mitigate unpredicted impacts (Gallardo & Sánchez 2004). Follow-up costs incurred by the proponent of this project were estimated at 1.03 % of total project costs (Sánchez & Gallardo 2005),

Figure 1: Construction of a small hydropower plant on Antas river, Rio Grande do Sul,
Photo: Luis E. Sánchez



which is probably an upper limit for large infrastructure projects, considering its location in an environmentally sensitive area.

The tiered licensing system mandates environmental agencies to check compliance with terms and conditions of one license in order to grant the next license. Although such an approach is supposedly conducive to a strict post-approval control, it creates a severe workload to officers who are also pressured to review new prior license applications. A 2004 audit of the federal agency IBAMA found it was “not systematically monitoring compliance with licenses’ conditions” (Lima & Magrini 2010: 112). Effective follow-up also suffers from inaccurate wording of terms and conditions of licenses (Dias & Sánchez 2000), a problem which, in turn, derives from environmental management plans not clearly stating the expected outcomes of each management program. Hence, verifying compliance is highly dependent on professional judgment (TCU 2009).

Current Debates

In the following section, selected issues representing ongoing debates are reviewed. Although every stakeholder has its own agenda and outlines possible re-

forms, the topics in this section are among the most disputed.

Effectiveness and Efficiency

Although EIA is well grounded in the legislation and environmental agencies have a clearly defined mission in terms of licensing, a “procedures-practice gap” (Glasson & Salvador 2000) remains. Yet, the decentralized nature of environmental licensing makes hazardous any generalization about practice in Brazil. Institutional strength and capacity is highly variable among States and most recent studies focus on the federal system only.

An early review of effectiveness studied six cases in São Paulo (Lima et al. 1995). Differently from previous studies focusing on deficiencies of EIS, it looked at the EIA process and its components, from screening to decision-making. Two of the reviewed projects were halted and four underwent modifications to reduce their impacts, indicating a positive influence of EIA on decision-making.

Recent appraisals about the federal system include a review by the World Bank (2008) and audit reports from the Federal Accounting Court (Tribunal de Contas da União-- TCU 2009 2011). This

court has undertaken operational audits of federal government agencies. Defined as “systematic collection and analysis of information on features, processes and results of a program, activity or organization (...), aiming to assess the performance of the government (...)” (Lima & Magrini 2010: 110), operational audits follow guidelines by the International Association of Supreme Audit Institutions and do not focus on finance or possible misuse of public funds but on efficiency and effectiveness of government action. The first IBAMA audit took place in 2004 and others have been conducted since. In 2009, a thorough operational audit found several shortcomings in federal licensing and strongly recommended they should be quickly addressed.

Partly basing its findings on interviews with environmental analysts, the audit report recommended inter alia the development of “technical and methodological criteria” (technical guidance) and the systematic follow-up of terms and conditions of licenses. TCU also challenged IBAMA to develop indicators to demonstrate the added-value of EIA. TCU continues to control IBAMA, having audited the follow-up of transportation projects (TCU 2011) and of the controversial Madeira river dams (TCU 2012). No similar initiative by the state counterparts of TCU is known, except for an audit being developed by the Minas Gerais Accounting Court at the time of writing. More such actions in other states would certainly contribute to improvements in the management of the licensing processes, contributing to both effectiveness and efficiency of EIA. A selection of recent cases where EIA resulted in avoidance or reduction of harmful impacts is presented in Box 1.

Training, Education and Professional Development

There is widespread concern about qualification of professionals working in EIA. Proponents and consultants complain about government officials for allegedly asking for unnecessary surveys and extensive data compilations, while staff at environmental agencies feels that too many EIS are so poor – to the point of preventing an acceptable impact analysis – because proponents and consultants alike are lacking capacity. As a matter of fact, a non-negligible portion of practitioners have not undergone any formal EIA training despite EIA being taught at universities at least since 1990 (Sánchez 2010b). Professional training programs, on the other hand, started as early as in 1987 in Paraná State, where a comprehensive EIA manual (SUREHMA & GTZ 1993) was concluded in 1992 (Brito & Verocai 1999).

Box 1: Recent cases where EIA made a difference (Federal licensing)

EISA Shipyard, Alagoas

In order to serve the offshore oil industry in the Northeast region, a private proponent endeavoured to build a new shipyard. Its 208 ha footprint would affect mangroves, coral reefs, a beach and local fishermen communities. Maritime access would require dredging approximately 3.5 million cubic meters. The review phase concluded that the proposed location was unsuitable to the project, finding that many adverse impacts were underestimated in the EIS, including significant impacts on endemic marine species. A revised project was submitted, not only significantly reducing impacts but also resulting in economic savings, as the volume of dredging was reduced by almost 80 % to 0.77 million cubic meters.

Itaocara I and II dam, Rio de Janeiro and Minas Gerais

This 195 MW hydroelectric project was proposed as a revised project in 2011, substantially modifying a project submitted for environmental licensing a decade earlier. In the original project, the dam would have flooded heritage sites, two towns and several rural properties, requiring involuntary resettlement. A first EIS was filed in 2000 and public hearings were held, but a vocal opposition arose, not only from citizens in the proposed area, but also from communities downstream. The major modification were two dams, 26 km apart from each other, with corresponding smaller reservoirs, an alternative the proponent managed to develop without reducing electricity output. This alternative resulted in 59 % reduction in the reservoir size and avoided flooding of two communities.

Porto Sul Harbour, Bahia

The state government wanted to develop an iron ore and grain export terminal in connection with a new railway. A study of alternatives selected the locality of Ponta da Tulha, near Ilhéus municipality, as the best suited, considering technical, economic and environmental variables. Hence, an EIS was filed for this alternative, but the review did not validate its conclusion of environmental feasibility. The project footprint would require removal of Atlantic rainforest for onshore installations, the pier would destroy coral reefs and the maritime access would require dredging 36 million cubic meters of sediments. As a consequence, the prior license was not granted. A revised project was submitted alongside a new EIS. A new location was chosen, the footprint was reduced and dredging was cut down by more than 50 %. A new offshore disposal area was proposed for the dredged material. As a result of all modifications, the costs were reduced by 24 %, allowing to conclude that the EIA process resulted in a win-win solution. Seven public hearings were held for the revised project.

Offshore oil production block BMCAL4, Bahia

This shallow water drilling project was not allowed to proceed after an environmental risk assessment concluded that even small oil leaks would reach protected coral reefs and mangroves faster than the emergency response and reckoned that the effects on fisheries and local communities dependent on fishing would hardly be mitigable. Despite successive project revisions, no acceptable solution to mitigate impacts and risks was found. Besides reefs and mangroves, the region is a breeding ground for two whale and five turtle species, all endangered, and hosts local fishing communities and several small-scale tourism activities.

Uruçuí dam, Piauí and Maranhão

This proposed dam in the Parnaíba river, part of a series of five schemes planned to develop hydropower, would feature a 124 MW hydro plant. However, its 100 km long, 27,900 ha reservoir would result in a very unfavourable relationship between flooded area and power capacity. The project would flood important remnants of savannah, impeding the establishment of a planned ecological corridor. In addition, a unique wetland would be lost, an impact that could not be mitigated. Significant social impacts include isolation of rural communities due to a barrier effect, and flooding urban heritage sites, requiring resettlement. In addition, the EIS review found several flaws in baseline studies and impact prediction. The license was denied.

S11D Mine, Pará

This massive US\$ 8.1 billion investment in an iron ore mining project in the Carajás region evolved from a conventional project to an innovative open pit mine where transportation of 90 million tons per year of ore will be done through a truckless system, significantly reducing greenhouse gas emissions, and a dry concentration plant, reducing projected water consumption by 93 %. The long EIS and EMP review period resulted in other significant project modifications leading to avoidance of about 1100 ha in deforestation (due to relocation of waste rock piles), protection of two natural lakes of high conservation value and several caves (due to a purposeful change in open pit limits). Taking advantage of a new railway extension (whose alignment was also modified to reduce harmful impacts), an additional innovation for mitigating social impact was developed. Instead of locating thousands of workers during peak construction in a small town, the modules will be built in yards located hundreds of kilometers away along the railway and transported to be assembled on-site, requiring a smaller quantity of temporary workers in a boom town.

EIA is currently taught at several universities and is part of undergraduate, graduate and specialization (diploma) curricula, while environmental agencies have been investing in staff training. However, staff turnover is a hurdle to the effectiveness of training programs, as mentioned by Rodrigues

(2010) for Minas Gerais and Hochstetler (2011) for IBAMA. In addition, despite investments in capacity building, a gap remains between individual learning and organizational learning both within government agencies and proponents, as found by TCU (2009).

One root cause to explain this gap

could be that the legal and procedural dimensions of EIA seem to prevail over its scientific and substantive dimensions. Every environmental agency has its rules of procedure, but very few technical guidance has been put forward by agencies. Additionally, the value of collecting and compiling critical reviews

Figure 2: The construction of Imigrantes highway resulted in 40 times less deforestation than the parallel highway built in the 1970s before EIA legislation
Photo: Amarilis Gallardo



of good practice or adopting other knowledge management initiatives is not yet fully acknowledged by the key actors in the EIA process.

Learning by Environmental Consultancies and Project Proponents

Several consultant firms are specialized in environmental licensing. In the early days, engineering firms started environmental departments to serve their clients, but several small consultancies established after EIA regulations came into force. Today, there is an array of firms ranging from branches of multinational consultancies to local small companies. Costanzo & Sánchez (2014) reviewed practices adopted by eight such firms of all sizes and found that they act on specific market niches defined by types of projects and geographical location, ranging from single market and local range to multiple types of projects and national focus.

In the past, the main service of such firms was to prepare technical documents for licensing, but currently they derive their revenue also from monitoring and other follow-up activities. More important, five out of eight firms in the sample have also been preparing, on occasions, an “environmental feasibility study”, a not regulated early assessment of a project that identifies its potential significant impacts and legal constraints aiming at designing projects that avoid or minimize harmful impacts before they are submitted to licensing. The extent of such practice is unknown, as it is

essentially private, but its existence suggests a learning process among proponents.

Project proponents include large companies and government departments handling several operations and new projects alongside proponents that may face a once-in-a-lifetime need to prepare an EIS. Arguably, the former features both potential and need of improvement in their project planning practices in order to facilitate licensing. Notwithstanding, there is limited evidence of learning or improved practice in this rather heterogeneous group. A number of large companies have established internal procedures for screening project decisions for their potential impacts, but a similar move is apparently slow or inexistent in large government proponents. A TCU audit found the National Department of Transportation Infrastructure’s capacity of organizational learning to be “severely limited” (TCU 2011).

Judicial Control

Environmental licensing in Brazil has been described as contentious, often opposing “blocking coalitions” against private and government proponents (Hochstetler 2011). Access to justice is granted to all citizens and civil society organizations that have standing to sue both private companies and government bodies. However, large development projects often disproportionately affect vulnerable social groups, whose actual access to justice is hindered by economic and other reasons.

A unique feature of EIA in Brazil is the external control by the Prosecutors Offices (Public Ministry). Entitled to protect the environment, consumers and minorities, many prosecutors are very active in the licensing process by initiating inquiries or litigating against projects, becoming “central actors in environmental enforcement” (Zambão 2010: 70). While appreciated by civil society organizations, direct involvement of the Public Ministry is often criticized by other actors.

While some commentators share a view that “legal institutions are problematic in environmental policy”, common in other countries (McAllister 2008: 14), much of the criticism in Brazil arises from the fact that every prosecutor enjoys a high degree of autonomy. Hence, some proponents complain about the unpredictability of their license applications. The World Bank (2008: 21) review captured such opinions by stating that the Public Ministry “has not employed its resources to solve problems but has instead come to represent an additional and controversial impediment to the environmental licensing of major developments, especially hydropower plants”. The fact that recent controversial large projects such as the Santo Antonio, Jirau or Belo Monte dams have not been stopped (Sánchez 2010c) – in spite of prosecutors being very active in these and other cases – does not fully validate the “impediment” thesis.

Another criticism is that on occasions their power has also been directed towards the weak parts, as the Environmental Crimes Act of 1998 opens up room for filing lawsuits against civil servants (environmental analysts) suspected of any misbehavior, a move that has contributed towards the above mentioned low rate of retention of trained staff. On the other hand, there is no doubt that in several states political support for environmental protection is feeble and pressure over environmental analysts can be powerful. In those situations of “strong laws, weak agencies” (McAllister 2008: 20), an independent Public Ministry can play and has been playing an important check and balance role.

Perhaps as a response to external criticism, the Public Ministry has adopted a number of non-confrontational initiatives. Examples are enlarging opportunities for public participation, led by Rio de Janeiro’s “Participatory Environment Network”, initiated and sponsored by the State Public Ministry and the establishment of an “Environmental Conflict Resolution Center” in Minas Gerais in September 2013. In the litigation front, prosecutors often seek to obtain a

temporary injunction that halts project development or evolve to file a lawsuit that aims at stopping controversial projects (Zambão 2010), but the most common outcome is settlements in the inquiry phase leading to legally binding out-of-court terms.

Tiering Project EIA to Upper Levels of Planning

Brazil has no legal requirements for strategic environmental assessment (SEA) but over two dozen SEA reports have been prepared either on a voluntary basis or to comply with development bank requirements. A number of practitioners believe that SEA could facilitate the assessment of projects and indeed such a belief seems to be a driver for voluntary SEAs (Sánchez & Silva-Sánchez 2008). However, researchers have been arguing that the rationale for SEA should come not from its potential to facilitate licensing, but from the intrinsically limited capacity of project EIA to deal with larger scale environmental change, such as massive land use change to increase biofuel production (Gallardo & Bond 2011). Indeed, current SEA practice is guided by a project "EIA rationality" (Malvestio & Montaña 2013), mimicking the preparation of EIS and not challenging planning practices.

Cumulative Impacts

Despite several situations of spatial concentration of projects, cumulative impact assessment is lagging behind other advancements in EIA practice. Public ministries in Minas Gerais and Rio de Janeiro have been pushing for the combined effects of projects subject to licensing to be systematically tackled by environmental agencies, while TCU (2009, 2011) also called the attention for this implementation gap.

In river basin planning for hydropower development, initiatives called integrated environmental assessments have been developed since 2006, when the Energy Planning Corporation (under the jurisdiction of the Ministry of Mines and Energy) concluded its first integrated assessment of the Uruguai river. These assessments are now prepared prior to selecting sites for new dams and are supposed to consider the cumulative impacts of a series of undertakings considered for the river basin. However, there is little research on the effectiveness of such assessments or their influence on decision-making.

Financial Institutions

A recent development in EIA practice is the involvement of banks, considering so-called socio-environmental risks. All major banks have dedicated staff in in-

Figure 3: Construction of Imigrantes highway

Photo: Luis E. Sánchez



ternal social and environmental units besides hiring consultants to assist in environmental review and monitoring project implementation. At the time of writing, six Brazilian banks subscribed to the Equator Principles, also adopted by international banks operating in Brazil. They commit to apply the Environmental and Social Performance Standards of the International Finance Corporation, whose requirements go beyond current legal requirements.

However, the major fund provider for development projects is the National Bank for Economic and Social Development (BNDES) which does not follow the Equator Principles and actually downgraded the environmental policy it started to develop and to apply in the 1990s (Fonseca & Nardin 1991). Besides funding business in Brazil, including controversial government projects such as the Santo Antonio, Jirau or Belo Monte dams, BNDES finances Brazilian companies operating abroad, acting as an export credit agency. In both roles, it is getting criticism from NGOs and local communities. A TCU audit found that lending operations of the BNDES and two other official banks, although compliant with legislation, contributed to deforestation in the Amazon, in contradiction with other government policies (TCU 2010).

Conclusions

EIA has evolved for almost 30 years in Brazil. It is solidly grounded on legislation and institutions, its practice involves thousands of professionals, it is researched and taught at universities.

Notwithstanding notable advancements, old problems remain unsolved and new challenges emerge. In the early days, modifying projects to avoid harmful impacts and simply holding a public hearing were disputed by proponents and government sectors. Today, EIA process often results in better projects, but their cumulative effects remain insufficiently considered. On the other hand, extensive mitigation is usually required as a condition of licenses and although plans are fully implemented, their effectiveness and actual outcomes are largely unchecked.

Demonstrating EIA value to society, i. e. that it conveys actual (and, ideally, measurable) benefits, is a challenge still at its infancy but strategic to counter claims of environmental licensing unduly delaying decisions and imposing unnecessary costs to development.

Arguably, these challenges represent "second generation" concerns, i. e. effectiveness and continuous improvement become issues only after procedural and content requirements are sufficiently implemented. Yet, there are enormous regional disparities in the current practice, themselves reflections of social and economic disparities, thus unrelated to any intrinsic aspect of EIA but influencing its outcomes (cf. Köppel in this issue). Alongside state-of-the-art assessments actively seeking to avoid and minimize harmful effects, there are useless compilations of secondary data and copy-and-paste style reports prepared exclusively to fulfill legal requirements but featuring little substantive content,

Prof. Dr.
Luis E. Sánchez
University of Sao Paulo
Escola Politecnica – PMI
Av. Prof. Mello Moraes,
2373
05508-900 São Paulo –
Brazil
E-Mail: lsanchez@usp.br

if any. No evaluation of Brazilian practice is possible without considering these variations.

References

Borioni, R. (2013): Procedimentos e Práticas da Etapa de Definição do Escopo da Avaliação de Impacto Ambiental no Licenciamento Federal. M.Sc. Thesis, Institute of Technological Research, São Paulo, 180 p.

Brito, E. & Verocai, I. (1999): Environmental impact assessment in South and Central America. In: Petts, J. (ed.): Handbook of Environmental Impact Assessment, 183-202, Oxford.

Consema – Conselho Estadual do Meio Ambiente (1993): Dez Anos de Atividades. São Paulo: Secretaria do Meio Ambiente.

Costanzo, B.P. & Sánchez, L.E. (2014): Gestão do conhecimento em empresas de consultoria ambiental. Revista Produção (in press).

Devlin, J. & Yap, N. (2008): Contentious politics in environmental assessment: blocked projects and winning coalitions. Impact Assessment and Project Appraisal 26 (1): 17-27.

Dias, E.G.C.S. & Sánchez, L.E. (1999): A participação pública versus os procedimentos burocráticos no processo de avaliação de impactos ambientais de uma pedreira. Revista de Administração Pública 33 (4): 81-91.

Dias, E.G.C.S. & Sánchez, L.E. (2000): Environmental impact assessment: evaluating the follow-up phase. In: Singhal, R. & Mehrotra, A. (eds.): Environmental Issues and Management of Waste in Energy and Mineral Production, 21-28, Rotterdam.

Fearnside, P.M. & Barbosa, R.I. (1996): The Cotingo dam as a test of Brazil's system for evaluating proposed developments in Amazonia. Environmental Management 20 (5): 631-648.

Ferrer, J.T.V. (1998): Audiência pública no processo de avaliação de impacto ambiental no Estado de São Paulo. In: Ferrer, J.T.V. et al. (eds.): Casos de Gestão Ambiental. São Paulo: Secretaria do Meio Ambiente.

Fonseca, I.A.Z. (1998): Uma revisão dos EIA/RI-MA sobre manguezais. In: Veiga, J.E. (ed.): Ciência Ambiental: Primeiros Mestrados, 187-207, São Paulo.

Fonseca, P.S.M. & Nardim, M. (1991): Projetos de desenvolvimento e impacto ambiental: uma visão holística sob a óptica de um banco de desenvolvimento. Revista de Administração Pública 25 (4): 25-32.

Gallardo, A.L.C.F. & Bond, A. (2013): Capturing the implications of land use change in Brazil through environmental assessment: time for a strategic approach? Environmental Impact Assessment Review 31: 261-270.

Gallardo, A.L.C.F. & Sánchez, L.E. (2004): Environmental follow-up of a road building scheme in a fragile environment. Environmental Impact Assessment Review 24: 47-58.

Glasson, J. & Salvador, N.N.B. (2000): EIA in Brazil: a procedures-practice gap. A comparative study with reference to the European Union, and especially the UK. Environmental Impact Assessment Review 20: 191-225.

Hochstetler, K. (2011): The politics of environmental licensing: energy projects of the past and future in Brazil. Studies in Comparative International Development 46: 349-371.

Kirchoff, D.; Montañó, M.; Ranieri, V.E.L.; Oliveira, I.S.D.; Doberstein, B. & Souza, M.P. (2007): Limitations and drawbacks of using Preliminary Environmental Reports (PERs) as an input to environmental licensing in São Paulo State: a case study on natural gas pipeline routing. Environmental Impact Assessment Review 27 (4): 301-318.

Landim, S.N.T. & Sánchez, L.E. (2012): The contents and scope of environmental impact statements: how do they evolve over time? Impact Assessment and Project Appraisal 30 (4): 217-228.

Lima, L.H. & Magrini, A. (2010): The Brazilian Audit Tribunal's role in improving the federal environmental licensing process. Environmental Impact Assessment Review 30: 108-115.

Lima, A.L.B.R.; Teixeira, H.R. & Sánchez, L.E. (1995): A efetividade da avaliação de impacto ambiental no Estado de São Paulo: uma análise a partir de estudos de caso. São Paulo: Secretaria do Meio Ambiente.

Malvestio, A.C. & Montañó, M. (2013): Effectiveness of strategic environmental assessment applied renewable energy in Brazil. Journal of Environmental Assessment Policy and Management 15 (2): 1340007 (21 pp.).

McAllister, L.K. (2008): Making Law Matter: environmental protection and legal institutions in Brazil. Stanford.

Mirra, A.L.V. (2006): Impacto ambiental: Aspectos da Legislação Brasileira, 3rd ed., São Paulo

Monosowski, E. (1991): Dams and sustainable development in Brazilian Amazon. Water Power & Dam Construction, May, 53-54.

Moreira, I.V. (1988): EIA in Latin America. In: Wathern, P. (ed.): Environmental Impact Assessment: Theory and Practice, 239-253, London.

MPF – Ministério Público Federal (2004): Deficiências em estudos de impacto ambiental: síntese de uma experiência. Brasília: Escola Superior do Ministério Público.

Rodrigues, G.S.S.C. (2010): A análise interdisciplinar de processos de licenciamento ambiental no estado de Minas Gerais: conflitos entre velhos e novos paradigmas. Sociedade & Natureza 22 (2): 267-282.

Sánchez, L.E. (2010a): The World Bank and the debate on hydropower licensing in Brazil. Impact Assessment and Project Assessment 28 (4): 123-124. [Book review]

Sánchez, L.E. (2010b): Environmental impact assessment teaching at the University of São Paulo: evolving approaches to different needs. Journal of Environmental Assessment Policy and Management 12 (3): 245-262.

Sánchez, L.E. (2010c): Damming rivers in the Amazon: a position on the Madeira River controversy. Impact Assessment and Project Assessment 28 (4): 123-124. [Book review]

Sánchez, L.E. & Gallardo, A.L.C.F. (2005): On the successful implementation of mitigation measures. Impact Assessment and Project Assessment 23 (3): 182-190.

Sánchez, L.E. & Silva-Sánchez, S.S. (2008): Tiering strategic environmental assessment and project environmental impact assessment in highway planning in São Paulo, Brazil. Environmental Impact Assessment Review 28: 515-522.

SUREHMA & GTZ (1993): Manual de avaliação de impactos ambientais, 2nd ed., Curitiba.

TCU – Tribunal de Contas da União (2009): TC 009.362/2009-4.

TCU – Tribunal de Contas da União (2010): TC 26021/2009-9.

TCU – Tribunal de Contas da União (2011): TC 025.829/2010-6.

TCU – Tribunal de Contas da União (2012): TC 037.468/2011-1.

Wandesforde-Smith, G. & Moreira, I.V.D. (1985): Subnational government and EIA in the developing world: bureaucratic strategy and political change in Rio de Janeiro, Brazil. Environmental Impact Assessment Review 5: 223-238.

World Bank (2008): Environmental Licensing for Hydroelectric Projects in Brazil: A Contribution to the Debate. Report no. 40995-BR.

Zambão, B. (2010): Brazil's launch of lender environmental liability as a tool to manage environmental impacts. International and Comparative Law Review 18 (1): 51-105.