

Strategic Environmental Assessment as a Critical Planning Tool in Asia

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Abstract

Part 1 - Strategic environmental assessment (SEA) has been applied globally for about 20 years, but Asia has been relatively slow in adopting this planning tool. In Asia, SEA has been used largely as an extension of environmental impact assessment (EIA – widely used for determining environmental and social safeguards for projects) to the level of plans and programmes but has not been fully integrated into national planning processes. In addition, case examples of its application in Asia show that there is no consistency in format, methodologies, or content. In a region where the bureaucracy is culturally embedded and sometimes resistant to change, the influence of SEA in changing planning decisions is rather mixed. Also, Asian countries have resisted the European approach of applying SEA to environmental assessment of policies. Additional research is needed on the extent to which SEA recommendations have been adopted and implemented in Asia, to uncover the most effective ways of using SEA in this diverse region.

Part 2 - Strategic environmental assessments (SEAs) are often expensive and time-consuming so they need to be effective. Effectiveness may mean that the rules and procedures have been followed as specified in national or international guidance documents. Effectiveness may also mean that SEA has achieved its purpose in preventing or avoiding environmental damage. One may even argue that SEA effectiveness should extend to indirect long-term changes in a country's sustainable development trajectory. On any of these measures, the track record of SEA effectiveness is highly variable. Most of the literature on SEA effectiveness, however, has been outside Asia, where SEA adoption has been more recent. The limited experience from Asia, however, suggests that the mixed record on effectiveness also applies to this region. While procedural effectiveness is relatively easy to address, substantive and indirect effectiveness require much greater attention. Two possible remedies are suggested (i) integrate the SEA and planning teams from the outset of the policy, plan or programme; and (ii) conduct follow up independent monitoring and assessment.

Part 1 - Strategic Environmental Assessment as a Critical Planning Tool in Asia

1. Background

Strategic environmental assessment (SEA) is conducted for policies, plans, and programmes. As a planning tool, SEA is increasingly being adopted in Asia. This report does not intend to conduct a stocktake of which countries in Asia have adopted or are planning to adopt SEA, as this has been done elsewhere. Rather, the intention is to examine how SEA has been used to improve upstream planning in Asia and what further improvements could be made.

2. Evolution of SEA in Asia

SEA is not exactly a new tool as it has been applied around the world for almost 20 years. The European Union established its SEA Directive in 2001 and the United Nations Economic Commission for Europe established a SEA Protocol in 2003 (Hayashi 2007). The Organisation for Economic Cooperation and Development (OECD) issued a guidance manual in 2006 (OECD 2006).

Asia was relatively slow in adopting SEA, however. Hong Kong's Environmental Impact Assessment (EIA) Ordinance has required an EIA for major development plans since the

1990s, China's Law on Environmental Impact Assessment adopted in 2003 covers both plans and projects, and South Korea's Prior Environmental Review System addresses environmental impacts at the early stages of plans and programmes since 2006 (Hayashi 2007). Vietnam revised its Law on Environment Protection in 2005 to cover SEAs for national, provincial, and sectoral strategies and plans (Slunge and Tran 2014).

Dusik and Xie (2009) compared progress on SEA in China, Vietnam, Indonesia, Malaysia, Philippines, Thailand, and Lao PDR, as well as 15 selected SEA cases. Victor and Agamuthu (2014) summarized the characteristics and prospects for further development of SEAs in 15 Asian countries. Countries that have a more established history of EIA implementation tend to have stronger performance on SEA (Sano *et al.* 2016). Generally, in Asia, SEA is not required for policy assessment, while area-based SEAs and public participation are not major features either (ICEM 2008).

3. SEA Use as a Planning Tool

Hundreds of SEAs have been conducted in Vietnam since 2002, typically with funding and technical assistance from international development partners. Although Vietnam is regarded as one of the frontrunners in applying SEA in Asia, institutionalizing SEA as a valuable planning tool continues to face multiple constraints, particularly as international aid declines. These challenges include insufficient training, lack of guidelines, data issues (especially baseline data), budget constraints, insufficient consideration of alternatives, poor timing, access to information and inadequate public participation (Slunge and Tran 2014).

According to Slunge and Tran (2014) SEA can be regarded as being effective when "it leads to improved integration of environmental concerns in strategic decision-making ultimately contributing to improved environmental outcomes". Too often in Vietnam, however, SEAs are conducted "after key decisions have been made". Parallel planning by the Communist Party and the formal bureaucracy also results in "opaque strategic planning", along with silo-based incoherence between ministries (Slunge and Tran 2014). These constraints create a significant gap between theory and practice, undermining effectiveness of SEA as a planning tool.

There is limited evidence, however, that some SEAs do influence planning outcomes. For example, the SEA of the Quang Nam Hydropower Development Plan, which provided for up to 50 new dams in the Vu-Gia Thu-Bon River Basin of Vietnam, triggered a formal review of the original hydropower plan, resulting in significant adjustment, such as removing dams illegally planned for construction in national parks (Bass *et al.* 2010). In 2014, Vietnam also added environmental protection planning to its Environmental Protection Law for assessing the environmental implications of the decadal socio-economic development plans (Sano *et al.* 2016).

Dusik and Xie (2009) suggest that SEA should be fully integrated into planning from the earliest stages rather than being conducted as a separate procedure, and inter-agency consultation and public participation are required for greater transparency. In Indonesia, SEA is applied to general spatial plans (at provincial, regency, and municipal levels), medium-term development plans, and master plans for accelerated economic development (Sano *et al.* 2016).

Victor and Agamuthu (2014) claim that "the primary problem of SEA implementation in Asia has been its limited integration in strategic decision making due to the highly political nature of policy planning framed within the cultural context of Asian countries". They note that these deeply embedded cultural and political constraints are highly resistant to change, even where SEA is strongly backed by legislation.

4. Case Examples in Asia

4.1 Preliminary SEA of the Great Western Development Strategy, China

The Great Western Development Strategy was China's attempt to bridge the economic gap between the coastal eastern provinces and the inland western provinces. The preliminary SEA was intended to examine the serious environmental threats in this region, ranging from water scarcity to serious pollution loads (World Bank 2007). The SEA was also intended as a capacity building exercise for Chinese officials following enactment of the EIA Law in 2003.

To facilitate the analysis, the western region was split into (i) mountainous sub-tropical southwest; (ii) northwest arid grass plains; and (iii) the Tibet-Qinghai high altitude plateau. Impacts were examined in relation to the strategy's five key development domains: water resources, land use, energy, biodiversity, and tourism (World Bank 2007). Impacts were assessed using scenario analysis and an assessment matrix based on expert consultations. Findings were summarised for each of these domains at the province level, relative to a 2002 baseline, with predictions to 2010. Recommendations for improved environmental management were made for each of the domains and each province. The extent to which these recommendations were implemented ultimately is not documented, however.

4.2 Strategic Environmental Assessment of Hydropower on the Mekong Mainstream

At the time of this SEA, 12 hydropower schemes on the mainstream of the Mekong River were under consideration (ICEM 2010). Upstream development of a cascade of dams in China, with resulting changes in seasonal flows, improved the viability of hydropower dams in the Lower Mekong Basin. The 1995 Mekong Agreement required that all projects on the mainstream should be discussed by the four affected countries before any decision was taken. The SEA was undertaken to give the riparian countries a better understanding of the risks involved if these hydropower projects were to proceed, and to support the wider Basin Development Planning process. The SEA was also intended to underpin project-level EIAs which would be developed by the specific project developers.

A few weaknesses of the SEA noted by ICEM (2010) were (i) discrepancies in future energy demand estimates; (ii) lack of consideration of alternatives; and (iii) uncertainty over future power purchases by Thailand and Vietnam. The SEA also noted that the impacts of the mainstream dams would be additional to 41 hydropower projects on tributaries, 8 additional storages in China, plus other pressures on the Mekong Basin's natural resources.

The impacts were characterised as (i) power generation and security – 6-8% of projected power demand in the LMB by 2025; (ii) economic development and poverty alleviation – Lao PDR \$2.6 billion/year; Cambodia \$1.2 billion/year in export revenue, but \$476 million/year loss of fisheries; (iii) ecosystem integrity and diversity – “serious and irreversible environmental damage”; (iv) fisheries and food security – undermine “abundance, productivity and diversity of the Mekong fish resources”; and (v) social systems – 2.1 million people at risk (ICEM 2010).

Four options were considered (i) no mainstream dams; (ii) deferred decisions; (iii) gradual development; and (iv) market driven. Ultimately, the SEA team made a firm recommendation of a 10-year deferral, with reviews every three years (ICEM 2010). Unfortunately, that recommendation was not heeded and option 4 (i.e. market driven development) has proceeded, with several mainstream dams under construction.

4.3 SEA for Power Development Plans in the Greater Mekong Subregion

This case illustrates the importance of considering alternatives in SEAs, a crucial tool that is often omitted (ADB 2015). The current power development plan (PDP) for the Greater Mekong

Subregion incorporated national PDPs of Cambodia, Lao PDR, Thailand, and Vietnam to 2025 compared to a 2012 baseline; PDPs for Myanmar, Yunnan Province, and Guangxi Zhuang Autonomous Region in China were not available. In addition to the current PDP, two alternative scenarios were considered: (a) renewable energy scenario displacing some coal-fired power plants, large hydropower plants, and nuclear power plants in Vietnam; and (b) energy efficiency scenario, also displacing some of these plants. Five scenarios were prepared with different commissioning dates, quantities of alternative energy, and different load profiles.

Both renewable energy and energy efficiency scenarios showed improved sustainability over the current PDP (ADB 2015). Of the 46 indicators used to assess impacts, six were monetized for comparison purposes. For total costs, the energy efficiency scenario is significantly less costly than the current PDP scenario, while there is relatively little difference between the renewable energy scenario and current PDP scenario (ADB 2015).

For the policy maker, this kind of SEA would clearly point to the desirability of energy efficiency but could give some confidence that renewable energy is also a viable option. In addition, the combination of energy efficiency and renewable energy would provide even greater sustainability, although such a scenario was not considered in this SEA. In 2018, this approach was applied to Vietnam's national PDP, which is seen as "a model of good practice in integrating a SEA in the preparation of a strategic plan" (ADB 2018). In the revision of PDP VII, renewable energy was increased by seven times and coal-fired power decreased by 30%, with savings of about \$1 billion per year.

4.4 SEA for Waste Management in South Korea

South Korea has set a target of zero-waste to landfills by 2020 but is still highly dependent on landfill for waste management (Um *et al.* 2018). For a new policy on waste management, SEA was first used, followed by a new policy framework based on the assessment, leading to revision of the Wastes Control Act (1991) and addition of an Enforcement Ordinance and Enforcement Regulation, and Notification of the Ministry of Environment. The SEA covered greater characterization of hazardous wastes, categorization of recycling types, and classification of environmental assessment procedures. For the definition of hazardous materials, new typologies and standards cover "explosiveness, flammability, combustibility, reaction with water, oxidation, and eco-toxicity" and add to the existing criteria of "leaching toxicity", "infectiousness", and "corrosiveness" (Um *et al.* 2018). Eight recycling types were identified ranging from reuse without any treatment to recovery of thermal energy from the waste. The new policy framework covers the recycling entity, environmental assessment institution, approval institution, and the permit issuance agency. These changes were then reflected in the relevant Waste Control Act and implementing regulations (Um *et al.* 2018).

4.5 Strategic Environmental and Social Assessment of River Stabilization, Bangladesh

Under the Flood and Riverbank Erosion Risk Management Investment Programme, this SEA is notable for its combination of strategic environmental and social assessment (SESA) (BWDB 2016). Bangladesh has several plans related to river bank stabilization including the Flood Action Plan, Capital Dredging Study, River Management Improvement Programme, the Flood and Riverbank Erosion Risk Management Investment Programme, and the Bangladesh Delta Plan 2100. It is also notable as Bangladesh had not included SEA or SESA in environmental laws or policies, at that time. Every year about 30,000 people are displaced or disrupted by eroding river banks and end up as slum dwellers in urban areas (BWDB 2016).

The Riverbank Stabilization Plan for the Jamuna-Padma-Lower Meghna river system is being developed for the period 2014-2023. Possible scenarios included (a) no land reclamation; (b)

active floodplain management; (c) active floodplain management and land reclamation; (d) two meandering channels, controlled upstream by bifurcation; (e) single channel planform; and (f) fully trained single channel. Possible interventions include dredging of a partial corridor, riverbank protection (geotextile sandbags and concrete blocks), new embankments, spill canals, and resettlement sites (BWDB 2016). Rather unusually, however, the SESA did not evaluate each of the scenarios separately, but merely focused on the “with” and “without” project interventions. Part of the conclusion was that “the overwhelming impact of all the proposed interventions is positive but they will all also have negative impacts on the communities in the study area primarily associated with income reduction due to relocation but also including adverse income distribution consequences with large land owners gaining most benefits” (BWDB 2016).

5. Observations

SEA is becoming a more widely used tool in Asia, with several hundred SEAs already completed. As indicated in the case examples above, a wide range of plans and programmes is covered by SEAs, with no consistency in scope, approach, or methodologies. In addition, most SEAs make quite sensible recommendations, but these are not always adopted by decision makers (e.g. in the Mekong hydropower case). A lacuna in the research on SEAs is any systematic evaluation of the extent to which the SEA recommendations are adopted and effectively implemented. Such an assessment would be helpful in determining the most effective methodologies and formats of SEAs that would convince decision makers to take the recommendations seriously.

Another serious gap in Asia is that most SEA legislation excludes strategic assessment of policy decisions (Ahmed and Sánchez-Triana 2008). Canada, Denmark, Finland, Netherlands, and New Zealand have required SEAs or their equivalents to inform policy decisions, but this has not been the practice in Asia. Many development partners have promoted the idea of using SEAs for policy assessment, but this has not been widely adopted in Asia. While the advantages of extending SEAs to policy assessment are obvious, several challenges need to be overcome (Ortolano 2007). Recommended approaches include (i) trained staff in the use of SEAs for policies; (ii) strong interaction between SEA teams and policy designers; (iii) powerful incentives, such as penalties for non-compliance; (iv) organisational learning; and (v) consistent high-level commitment (Ortolano 2007).

Part 2 - Effectiveness of Strategic Environmental Assessment

1. Introduction

Strategic environmental assessment (SEA) is intended to examine the environmental implications of policies, plans and programmes, while environmental impact assessment (EIA) is restricted to projects. One expectation is that conduct of a SEA will address upstream concerns, thus preventing environmentally damaging projects from being proposed. Another expectation is that SEAs will help to integrate environmental considerations into other planning processes. Fischer and Montaña (2019) note, however, that “there’s currently an unexplored universe related to the integration of [impact assessment] IA into the policy, plan, programme or project making process”. Effectiveness of SEAs has multiple dimensions, principally related to procedural effectiveness (following the rules) and substantive effectiveness (achieving the objectives) (Davidovic 2014). Global experience suggests that SEAs are not always effective using either measure, so this article examines the implications of this concern for SEAs in Asia and suggests some approaches that may help to improve the overall effectiveness of this increasingly adopted planning tool in the region.

2. Global Experience of SEA Effectiveness

Rega *et al.* (2018) considered the “substantive effectiveness” of SEAs on urban plans (i.e. the extent to which the plans were changed by the SEAs), in Italy and Spain, recognizing that this is only part of the overall effectiveness of SEAs. The authors sampled a selection of SEAs and evaluated changes in the plans required by the SEA authorities, changes which are unquestionably results of the SEA process (Rega *et al.* 2018). In Spain and Italy, the independence of the SEA authorities differs, despite both countries falling under the European Directive, as Italy has a SEA Authority which is fully independent from the agency that prepares a plan. From an analysis of 40 urban plans, changes were required in 95% of Spanish cases and 90% of Italian cases. The authors also noted, however, that environmental considerations are not fully integrated into planning from the outset, which should be the ultimate goal of SEAs (Rega *et al.* 2018).

In South Africa, six SEAs were measured against four key performance areas and nine performance indicators (Retief 2007). All six SEAs were found ineffective as they were not able to influence the plan/programme contents or decision making. There were examples, however, of capacity building and raising environmental awareness.

In Brazil, examination of 9 out of 35 SEAs applied to energy planning found “adequate performance in screening, baseline and description of mitigation actions, but serious deficiencies in the definition of SEA objectives, identification of strategic alternatives, description of public participation and follow-up strategies” (Malvestio and Montaña 2013).

In Portugal, SEA professionals revealed confusion between the aims of SEAs and what they actually achieve in practice, suggesting that they are less than effective (Partidario and Monteiro 2018).

In Canada, effectiveness of SEAs is limited by the lack of mandatory public participation and disconnection from any formal system of “integrated policy, planning and development decision making” (Noble *et al.* 2019). In an earlier assessment, Acharibasam and Noble (2014) found that SEAs at the output level have a direct impact on policies, plans and programmes, but there is less evidence of effectiveness on the longer term, indirect outcomes of SEAs.

In Ireland, experts agree that SEA contributes to planning decisions but overall it remains to be seen if SEAs really prevent adverse environmental effects (González *et al.* 2019).

3. Case Study – Effectiveness of the SEA of the Tourism Sector in Cambodia

As the lead author of this SEA (ADB 2009), it is instructive to revisit the key recommendations a decade later and see whether the SEA was effective in changing the face of tourism in Cambodia. Of course, complete attribution is not possible in such cases, but it should be possible to identify some contribution to sustainable tourism if the SEA was truly effective.

The SEA scope covered a draft Tourism Law, the draft national ecotourism policy and strategy, and tourism development plans for the northeast triangle and coastal areas. While the detailed recommendations on specific mitigation measures applied to these two spatial areas, this assessment only reviews outcomes for the Tourism Law and ecotourism policy and strategy.

On the draft Tourism Law, the SEA found that several environmental measures could be strengthened and the need for EIAs specified. The recommended revisions to the draft Law (and action taken) were as follows:

- (i) “Cross reference to EIA requirements for tourism development proposals” – not included;

(ii) “Specific reference to an agreement between [Ministry of Tourism] MOT, [Ministry of Environment] MOE, and [Ministry of Agriculture, Forestry and Fisheries] MAFF on conditions applying to tourism development in or near protected areas” – Article 10 “The Ministry of Tourism shall consult with and consider the advice of such relevant-line ministries, institutions and authorities; where another ministry or authority has an advisory interest in an area of the tourism industry” and “natural protected areas” are included in Article 30 as one location for tourism business activities with shared responsibility;

(iii) “The need for environmental standards and criteria, agreed with MOE, to be applied in allocating tourism licenses” – not covered under Chapter 5: Quality Assurance, Standards and Licensing;

(iv) “Defining a “serious potential risk to the environment”, again in conjunction with MOE, as the basis for cancellation, suspension, or downgrading of a tourism license, along with subsequent processes to deal with the risk” – Article 44 states “In an emergency situation where the Ministry of Tourism or Provincial-Municipal Department of Tourism considers that the continuing operation of a tourist business poses an immediate and serious potential risk to health, safety or security the Ministry of Tourism or Provincial-Municipal Department of Tourism may cancel or suspend the licence by specifying the reasons for such action” but does not specifically refer to the environment; and

(v) “Specifically providing for an environmental guarantee fund, as part of the tourism license fees, which would provide immediately available funding for emergency clean up or rehabilitation of the environment as a result of a tourism-related incident” – Article 44 states “Cancellation, suspension or downgrade of a licence under this Article shall not relieve the licensee from liability for the offences and penalties under Chapter Ten of this Law and other laws in effect” but there is no provision for an environmental guarantee fund. (ADB 2009; Government of Cambodia 2009).

Based on this assessment, it appears that the SEA had little (if any) influence on the revision of the draft Tourism Law.

In relation to the draft ecotourism policy and strategy, the SEA found that it was “broadly positive for the environment, although greater attention could be paid to forming a stronger connection between development of ecotourism and generating finance for protection of the environment on which the industry depends. Global best practice in ecotourism and a globally accepted eco-label could form important elements of the national policy” (ADB 2009). Also, the SEA recommended that environmental standards for ecotourism should be agreed with the Ministry of Environment, based on global best practice.

In 2018, the OECD reported “only recently have the tourism and environment ministries come together to discuss drafting a national ecotourism policy and a legal framework to promote ecotourism, even though this task was set out four years ago in the national strategic development plan” (OECD 2018). In November 2018, local media reported that the Council of Ministers had signed a draft policy to support ecotourism expansion, but it still needed National Assembly approval.

A World Bank project on sustainable landscapes and ecotourism is currently under preparation (World Bank 2019). Component 2: Strengthen opportunities for ecotourism and non-timber forest products value chains (estimated cost \$16.75 million) is intended to improve “governance, management and regulations” as well as stimulating private sector investment. Technical assistance will be provided to create national guidelines and best practices and help to finalise policy guidelines for ecotourism in protected areas (“expected to be approved by the Minister [of Environment] by December 2019”) (World Bank 2019).

Based on this information, it seems that the SEA either had no impact on the draft ecotourism policy and strategy, already available more than a decade ago, or environmental policy completion is a long drawn out process in Cambodia.

4. Implications for Asia

Obviously, experience from one SEA cannot be the basis for a generalisation that SEAs conducted in Asia are not effective. However, combined with observations on the outcomes of other SEAs in the region (e.g., ICEM 2010) and experience globally, a case can be made that greater attention needs to be paid to the effectiveness of SEAs in the region. For example, although SEA has only recently been adopted in Thailand, Chanchitpricha, Morrison-Saunders, and Bond (2019) found from examination of 14 SEAs since 2015 that they partly achieved “procedural, substantive, and transactive effectiveness” but most of the SEAs evaluated “failed to achieve legitimacy”.

In a cross-country literature review assessment involving China, South Africa, Brazil, South Korea and India, Davidovic (2014) found that “the majority of the case studies present an overall low performance in terms of SEA effectiveness”. Some of the key reasons are (i) conducting a SEA after key decisions have already been made; (ii) lack of interaction between SEA experts and planners or policy makers; (iii) confusion over the depth of analysis required; (iv) limited understanding of the political ecology underpinning the planning decisions (often seen as a lack of political buy-in); (v) insufficient consideration of alternatives; (vi) lack of public participation and access to SEA draft findings at an early stage; and (vii) a lack of monitoring of the sustainability objectives (Davidovic 2014).

As an exception to the general rule that post-SEA effectiveness assessment is lacking in Asia, a comparative study between China and the Netherlands is instructive (ACEE and NCEA 2014). Starting in 2007, the then Ministry of Environmental Protection (MEP) conducted a pilot SEA for five industrial regions. These were regarded as “an important reference for national and major regional strategies” and led to additional regional SEAs for the western region (2011-2012), central region (2013-2014) and the Beijing-Tianjin-Hebei region, Yangtze River Delta, and Pearl River Delta starting in 2015. These are regarded as providing a “warning platform on resource and environmental carrying capacity of national development” (ACEE and NCEA 2014).

While this was a self-assessment, rather than independent, the pilot SEA for the five mega-regions resulted in the MEP issuing guidance in 2011 covering industrial upgrading, changes to industry locations, regional environmental protection strategies, and environmental limits and carrying capacity (ACEE and NCEA 2014). The overall assessment was that “the SEA can be considered as a successful practice for assisting decision-making, and as a new approach for environmental protection” as evidenced by (i) expanding the integration of environmental protection into major industrial development decisions; (ii) preventing environmental risks from poor location decisions; (iii) breaking down the silo-like planning process; (iv) setting environmental “red lines”; and (v) providing an opportunity to test new evaluation methods (ACEE and NCEA 2014). “SEA results were used in the formulation of guidance and policies on key industries, and in specifying and refining the development direction, spatial arrangement and environmental protection goals of key industries” (ACEE and NCEA 2014). It was also noted that the pilot SEA provided a basis for improved project-level EIAs.

A contrary view on SEA effectiveness in China, which suggests it is too focused on impacts and mitigation measures, rather than decision-making or policy outcomes, is found in Davidovic (2014).

5. Observations

As indicated above, the effectiveness of SEAs in Asia (and globally) has been very mixed, not helped by the lack of agreement on what constitutes “effectiveness”. Apart from improving the procedural aspects (e.g., greater clarity on the scope and purpose of the SEA, improved transparency, inclusive public participation, adequate consideration of alternatives, among others), increased attention needs to be paid to substantive effectiveness.

As formulation of a policy, plan or programme requires more input and analysis than environmental assessment alone, more substantive effectiveness can be achieved by integrating the SEA and planning teams from the outset—not starting the SEA after the key decisions have already been made. Additionally, follow up independent monitoring and assessment is needed to ensure that the SEA recommendations were not only practical and implementable but also had the intended effect in preventing environmental harm. Such feedback provides an invaluable learning experience and will lead to improved SEA practice in future.

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