

Why Joint Development Agreements Fail: Implications for the South China Sea Dispute

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Although nearly twenty joint development agreements have been signed since the 1950s, only a few have been implemented and even fewer have achieved successful commercialization. This article discusses the conditions leading to the implementation failures of joint development agreements. Applying the Crisp-set Qualitative Comparative Analysis method to nineteen joint development agreements between 1958 and 2008, this article argues that the only causally-related condition associated with the failed implementation of joint development agreements is the deterioration of bilateral relations, often arising from the maritime boundary dispute that the joint development agreement was supposed to resolve. Other possible hypotheses, such as lack of economic incentives, energy independence, domestic opposition, third-party intervention and disagreements over the details of the project, do not show any correlated pattern with the failure to implement such agreements. The finding provides policy implications for the current boundary disputes in the South China Sea: improved bilateral relations is the prerequisite for the effective implementation of joint development ventures, and not the other way around. Littoral states should also not pursue joint development agreements as a false pretext to secretly consolidate their maritime boundary claims, or to confirm the status of a “dispute”. Furthermore, successful negotiations for a Code of Conduct for the South China Sea may help to create a conducive atmosphere for claimant states to agree on the joint development of offshore hydrocarbon resources.

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Joint development represents an effective mechanism for contesting states to benefit from the exploitation of hydrocarbon resources in disputed areas without risking the escalation of diplomatic and military tensions. In the most ideal scenario, the successful implementation of joint development agreements creates a conducive atmosphere for dialogue and boundary delimitation. Since the 1958 Bahrain-Saudi Arabia joint development agreement, about twenty bilateral joint development agreements have been signed to explore for and exploit hydrocarbon resources in disputed areas. However, only a few joint development agreements have proceeded to the implementation phase, let alone commercialization.

Many international legal scholars argue that the failure to implement such joint agreements is often not related to the legal frameworks of those agreements. Rather, the fault lies in factors outside the domain of international law, such as lack of economic incentives, the intervention of third parties or other claimant states, the emergence of domestic opposition, or the deterioration of relations between the signatory states. These aforementioned factors are sometimes subsumed under the category of “political will”. William Stormont and Ian Townsend-Gault, for instance, have argued that political will is “the single most important ingredient in the successful conclusion and continuation” of any joint development arrangement.¹ However, the definition of “political will” in the literature is often, in the words of Clive Schofield, “somewhat nebulous”.²

Despite the consensus over the importance of political will in determining the outcome of joint development agreements, the analyses and conclusions are largely based on meticulous case-by-case analysis, whereas no systematic comparative analysis of all the cases has been conducted to unravel the causal links behind the failure of joint development agreements. This article is designed to fill this literature gap.

This study uses the qualitative comparative analysis (QCA) method to examine six causal variables that are often cited to explain the failure of joint development agreements. They are: (i) low oil prices; (ii) energy independence; (iii) domestic opposition; (iv) deterioration of bilateral relations; (v) third-party intervention; and (vi) bilateral disagreements over the details of the joint development agreement. These were tested against nineteen joint development

ventures between 1958 and 2008 in Europe, Africa, the Asia Pacific and Latin America.

The article concludes that a deterioration in bilateral relations is the only consistent causal condition associated with the failure of joint development agreements. The precipitating cause of worsening bilateral relations varies in each case, but is generally the result of ongoing territorial or maritime boundary disputes, such as when the signatory states try to secretively consolidate their claims, or to confirm the status of a “dispute”³ while ostensibly moving forward with joint development. Meanwhile, the other factors under consideration—economic disincentives, domestic opposition, third-party intervention, energy independence and legal disagreements—do not provide a causal relationship with the failure to implement joint development.

The resource-abundant South China Sea is host to many territorial and maritime boundary disputes, making it a suitable area to test the viability of joint development projects. Against the background of increasing energy demand and declining domestic energy production, eight joint development agreements have been signed involving at least one Southeast Asian country (with varying outcomes), and further cooperation is being explored. Although a few Southeast Asian countries have experience in conducting joint development, their cooperation with China in the South China Sea has failed to achieve much progress. Two findings of this article are pertinent to the prospect of joint development projects in the South China Sea. First, since joint development and delimitation are mutually exclusive strategies in managing disputes, claimant states should not enter into joint development agreements as a false pretext to advance their territorial and maritime boundary claims. Second, since friendly relations between signatory states are crucial for the implementation of joint development agreements, committing to a set of binding rules (such as a Code of Conduct) that will regulate the actions of all disputing claimant countries in the South China Sea is critically important. This will help to maintain peace and stability in the region and create a conducive environment for joint development ventures to be carried out, especially against the backdrop of escalating US-China competition.

This article is divided into four sections. After the Introduction, the article provides a literature review of the various factors that could lead to the failure to implement joint development agreements. After that, it explains the methodology, hypotheses, case selection and calibration, followed by a comparative analysis of the selected

cases. The next section discusses the implications for the South China Sea dispute, followed by a short conclusion.

Four Possible Factors Placing Joint Development in Peril

There are several definitions of joint development. Most notable are those advanced by Townsend-Gault, Masahiro Miyoshi, Bernard Taverner and the British Institute of International and Comparative Law.⁴ This article adopts the following definition:

Joint development is an inter-governmental arrangement of a provisional nature between two or more countries, designed for the functional purposes of joint exploration for and/or exploitation of hydrocarbon resources, whether onshore or offshore, in overlapping or disputed areas, or in areas where countries have not achieved agreement on delimitation.

This definition is primarily based on Miyoshi's,⁵ but with some minor amendments relating to the issue of boundary delimitations. It is important to emphasize four points. First, this definition excludes arrangements involving states and private entities entering into contracts to jointly develop resources. However, exceptions are made for agreements between state-owned enterprises (SOEs). Such agreements can be considered inter-governmental since the SOEs usually act on behalf of their respective states. Second, the definition confines the scope of joint development agreements only to those located in disputed waters or territories.⁶ Third, the definition emphasizes the provisional nature of joint development agreements, which implies that the arrangement is subject to revision, cancellation or termination in the event that the delimitation of the disputed area is finalized. Fourth, the definition excludes the joint development of living resources (such as fish) and non-resource-related activities. In recent years, some states have begun to approach the management of disputed waters in a holistic manner, which includes the co-management of living resources and security issues.⁷ However, as the joint development of living resources and security in disputed areas require very different conditions to be met for their effective implementation, this article confines itself to discussing the joint development of hydrocarbon resources.

Joint development has been explored by many countries for the various benefits it offers. From the perspective of international law, it enables countries to generate revenue from offshore hydrocarbon resources in contested areas with more legitimacy. Articles 74(3)

and 83(3) of the United Nations Convention on the Law of the Sea (UNCLOS) allow states to enter into provisional arrangements of a practical nature to deal with issues pertaining to the delimitation of exclusive economic zones (EEZs) and the continental shelf. More importantly, these provisional arrangements (which include joint development) will “be without prejudice to the final delimitation”.⁸

From the regional and national security aspect, the successful implementation of joint development ventures helps to ease tensions between claimant states and prevent conflicts arising from boundary disputes. Moreover, given the huge costs involved, the participation of international petroleum companies is required to undertake the exploitation projects. Joint development agreements provide juridical and political certainty, reduce investment risks and prevent reputational damage for the petroleum companies investing in the contested area. As argued by Nguyen Hong Thao, joint development offers a way for littoral states to share the costs and benefits of exploiting hydrocarbon resources in contested areas without sacrificing their territorial claims, guaranteeing at least a “no gain no loss” solution.⁹

Between the 1970s and 1990s, a number of joint development arrangements were signed. However, actual implementation of joint development agreements remains relatively rare. Among all the joint development agreements that have been signed, including those in disputed and non-disputed areas, fewer than half have been successfully implemented, while the majority were either cancelled or terminated.¹⁰ The total number of agreements that have been effectively implemented is very small when compared to the number of boundary disputes that are fuelled by competition over mineral resources.¹¹

Factors that cause joint development agreements to stall are complex and often overlapping. In general, they can be categorized into four categories: domestic factors (involving politics, law and security); foreign relations; economic incentives; and factors inherent in the joint development arrangements themselves.

Domestic Politics, Law and Security

In terms of domestic politics, three kinds of phenomena frequently pose a challenge to the success of joint development agreements. The first is exclusivist nationalism. Joint development in contested waters often attracts criticism from hardline nationalists or opposition parties who accuse the government of sacrificing national interests.

The ensuing public outcry against the agreement creates obstacles to its implementation. A more severe situation occurs when governments used to endorsing militant nationalist rhetoric find themselves under attack by the very nationalists they have cultivated. This leads to a deadlock in which neither the negotiation of delimitation nor an agreement over joint development with a rival claimant state is viable from the perspective of domestic politics.¹² The negotiation of a joint development agreement between China and Japan in 2008 is a case in point. The negotiations were harshly criticized by Chinese nationalists, which meant that Beijing was unable to simply sideline its boundary claims when stipulating the terms of the joint development agreement with Tokyo. China later insisted on calling the arrangement a “cooperative development” in order to sidestep the boundary dispute. However, ultimately Beijing and Tokyo failed to reach an agreement regarding the boundaries of the joint development zone. This episode reveals how domestic pressures, especially in the form of exclusivist nationalist sentiments, can hamper the prospect of joint development, even in China.

A second domestic factor impeding the implementation of joint development is the weak political position of the incumbent leader. Under these circumstances, political opponents would challenge the joint development agreement for reasons such as energy security, sovereign interests and domestic laws. Facing serious accusations and the threat of legal action, the incumbent administration is likely to lack the capacity to follow through with the joint development project. An example of this was the 2005 Philippine-China-Vietnam Joint Marine Seismic Undertaking (JMSU). The corruption allegations involving then-Philippine President Gloria Arroyo and Chinese-backed infrastructure companies, and the low popularity of the president, triggered a series of investigations against her, including the JMSU which her opponents said violated the Constitution.¹³

The third factor involving domestic politics is the challenge of developing an internal consensus in the country. The negotiation of a joint development agreement often involves multiple domestic agencies, and the difficulty of reaching a consensus among domestic stakeholders can threaten the effective implementation of the agreement. Even in unitary states, the decision-making process involves multiple domestic players with different interests. For instance, the Chinese navy has occasionally adopted a hawkish stance towards the South China Sea dispute which is incompatible with the interests of the Chinese Ministry of Foreign Affairs. Furthermore, the actions of the Chinese navy undermine the

provincial governments of Hainan and Guangxi which are keen to pursue joint development.¹⁴ The complexity involved in reaching consensus among domestic institutions—even in China—thus belies the conventional expectation that it is easier for non-democracies to establish a consensus on collective action.¹⁵

Domestic law can also impede the implementation of joint development agreements. However, compared to the obstacles posed by domestic political issues, the challenge posed by domestic law is more manageable as long as there is sufficient time to amend the legislation to accommodate the requirements of the joint development agreement. For instance, the 1979 Malaysia-Thailand agreement was tested by the issue of two different contractual systems.¹⁶ Malaysia's 1974 Petroleum Development Act granted oil and gas resource development rights (including exploration, exploitation and licensing) to Malaysia's state-owned energy corporation Petronas and adopted a production sharing system. However, Thailand's 1971 Petroleum Act had adopted a concession system. Prolonged negotiations between Malaysia and Thailand took place throughout the 1970s and 1980s, but it was only in 1990 that the Malaysia-Thailand Joint Authority (MTJA) was established, marking the beginning of the implementation of the 1979 agreement.

The final domestic factor concerns energy security. States are willing to enter into joint development arrangements in order to increase their energy independence. In the aftermath of the global oil crisis of the 1970s, many countries sought to enhance their energy security. The 1974 joint development agreement between Japan and South Korea was one such example, as both countries were spurred by the need to counter the global oil crisis¹⁷ by exploiting new sources of energy.¹⁸ Similarly, the imperative to protect its energy security may incentivize China to shelve its boundary disputes with the littoral states of Southeast Asia and instead pursue joint development ventures. Furthermore, since over 70 per cent of China's oil imports passes through the Straits of Malacca and the South China Sea, making peace with Malaysia and other littoral states would help China increase its energy security.¹⁹

Foreign Relations

There are three aspects of foreign relations that may negatively impact the implementation of joint development agreements. Friendly bilateral relations between countries is a prerequisite for the participating states to be predisposed towards joint development.²⁰ Any deterioration in

bilateral relations between the signatory states, whether directly related to the joint development venture or otherwise, could therefore derail the agreement. For instance, due to the sporadic conflicts along the Thai-Cambodia border near the Preah Vihear Temple and Cambodia's appointment of ousted Thai Prime Minister Thaksin Shinawatra as an economic adviser, in 2009 the Thai government was reportedly considering the unilateral revocation of the 2001 Cambodia-Thailand Memorandum of Understanding regarding overlapping continental shelf claims in the Gulf of Thailand.²¹ The implementation of the 2008 joint development agreement between China and Japan also failed partially due to the collision of a Chinese fishing boat with a Japanese coast guard vessel in 2010 and the Japanese government's purchase of one of the disputed Senkaku/Diaoyu Islands in 2012.²² The 1979 agreement between Malaysia and Thailand was also negatively affected by bilateral disputes over fishing rights.²³

The absence of "shared values" between signatory countries is not conducive for implementing joint development ventures. It has been argued that joint development agreements among Southeast Asian countries have benefitted from a sense of shared values arising from a common ASEAN identity. Hence, for instance, the inclusion of Cambodia and Vietnam into ASEAN has purportedly contributed to the success of joint development in the Gulf of Thailand.²⁴ A similar argument could be made about the impact of a pan-Arabic identity on the success of the joint development venture between Kuwait and Saudi Arabia in the Neutral Zone in 1965.²⁵ However, arguments about "shared values" are often made in rather sweeping and generalized terms that do not clearly and methodically explain the causal mechanism.

Moreover, third-party interventions can also disrupt the implementation of joint development projects. The opposition of a third-party claimant state can increase the risks for international energy companies seeking to participate in the joint development agreement, thus hampering investment prospects and technical expertise. Deteriorating relations with a third-party claimant country can also have spillover effects on other bilateral issues, such as trade and foreign direct investment. The 1974 Japan-South Korea joint development agreement provoked official protests from Beijing, which claimed sovereign rights over part of the joint development zone. Although Beijing did not undertake any retaliatory action, opposition parties in the Japanese parliament cited Beijing's protests as an excuse to block the ratification of the joint development agreement for four years.²⁶

Other non-claimant countries may also intervene on the grounds of geostrategic calculation. According to some Chinese researchers, the United States has attempted to block China's efforts to broker the joint development of hydrocarbon resources in the East China Sea and the South China Sea.²⁷ Two joint development attempts between China and the Philippines were supposedly unsuccessful due to the intervention of the United States.²⁸

Economic Incentives

There are two relevant economic factors that encourage claimant states to pursue joint development: the significance of the resources to the countries concerned and the degree of benefit that could be gained from coordinating their efforts.²⁹ The potential economic return is often a strong motivating factor in joint development. For example, Thailand was eager to conclude the joint development agreement with Malaysia in 1979 as it was seeking to reduce its reliance on oil imports.³⁰

Global oil prices also affect the prospects of joint development: when prices surge, countries are more likely to consider entering into joint development arrangements; conversely, when oil prices are low, interest in joint development wanes. This is relevant to the November 2018 Memorandum of Understanding signed between China and the Philippines regarding cooperation on oil and gas development. Lin Kang and Chuanyu Luo argue that as the current price of crude oil is only slightly higher than the average cost of exploitation, "the motivation is insufficient" in both countries.³¹

An accurate assessment of the size of hydrocarbon deposits is also conducive for an agreement to be reached as it increases the prospects of commercial success.³² The 1992 Malaysia-Vietnam agreement was quickly settled after Malaysian contractors discovered significant seabed resources.³³ Conversely, Mark Valencia is right to caution that a more accurate assessment of the deposits might actually make claimant states more reluctant to engage in joint development because they are reluctant to share what they consider rightfully belongs to them.³⁴

Factors Associated with the Joint Development Agreements

There are factors associated with joint development arrangements themselves that may disrupt cooperation between the signatory

states. Disagreement may arise about the size and borders of the joint development zone, the issue of pre-existing rights, operational costs, revenue distribution, the legal regime, the function of the authoritative body etc. While it is possible for such disputes to be resolved through further negotiations, some joint development agreements have been shelved or cancelled due to such problems. For instance, there was a delay in implementing the 1979 Malaysia-Thailand MOU due to disagreements between the two parties over the roles of the MTJA. Although the two countries initially intended to emulate the 1974 Japan-South Korea agreement and form a supranational authority, both countries were later reluctant to grant governing rights to the MTJA.³⁵ The Thai authorities were also embroiled in a commercial dispute over pre-existing rights that had already been granted to two oil companies.³⁶

The physical size of the joint development zone can also affect the success of a joint development agreement. A geographically larger joint development zone is more difficult for signing parties to delimit (as was the case with the 1974 Japan-South Korea agreement), while a smaller zone helps states reach an agreement on joint development more easily (as in the case of the 1992 Vietnam-Malaysia agreement).³⁷ The duration of the agreement is also relevant to the implementation procedure. Short-term agreements may hasten the implementation due time constraints, while longer-term agreements provide more flexibility on time.³⁸

In general, joint development agreements are examined within the framework of international law and analysed as a legal document. However, a comparison of the various joint development ventures reveals that their effective implementation is dependent more on the political relationship between the parties concerned and their political will than the stipulated legal clauses and mechanisms. As Lucio Pitlo notes, “at the end of the day, joint development remains a political exercise of defining their national interests and calculating domestic and international responses”.³⁹

Hypotheses, Methodology and Data

This section elaborates the hypotheses derived from the literature review to discuss the conditions that can alter a country’s “political will” to implement a joint development agreement. It will be followed by a discussion of the methodology, case selection and calibration of conditions.

Hypotheses

This section sets out six hypotheses which may explain the impediments to joint development. Before elaborating on the hypotheses, it is necessary to define further an implementation failure. In this study, an implementation failure occurs when the signing parties fail to take action to make substantial progress towards the intended objectives of the signed joint development agreement within five years of the agreement taking effect, or the agreement being terminated or cancelled at any time within the validity of the agreement.

Actions that count as substantial progress include, but are not limited to, establishing a framework to further regulate the cost and revenue distribution arrangements, stipulating the functions of the joint development authority, signing commercial contracts with petroleum companies under the framework of the joint development agreement and the actual act of joint exploration. If either or both parties announce the cancellation or termination of the agreement, this would count as an implementation failure. However, a termination due to force majeure is not considered an implementation failure. As such, the termination of the 1989 Timor Gap Treaty between Australia and Indonesia does not qualify as an implementation failure since its progress was affected by the secession of East Timor from Indonesia in 1999. The five-year deadline for the implementation of joint development is arbitrary but necessary for a comparison of outcomes. With the complexity of developing hydrocarbon resources in mind, a period of five years generally represents sufficient time for the signatories to make substantial progress towards joint development.

Based on the literature review above, the following six hypotheses are proposed to explain an implementation failure:

(a) **Absence of Economic Incentives**

The lack of economic incentives can cause signatory states to delay taking action to jointly explore and exploit hydrocarbon resources. Rather than terminating the agreement, the countries are more likely to postpone the implementation indefinitely and wait for a more opportune occasion. Economic incentives are particularly weak when global crude oil prices are low.

Hypothesis 1: Implementation failure occurs when global crude oil prices are low.

(b) Energy Security

States with a high energy independence ratio may show less enthusiasm for negotiating the exploration, exploitation and development of hydrocarbon resources. Signatory states that are less energy-independent are thus more likely to implement joint development agreements.

Hypothesis 2: Implementation failure is likely to occur when signatory countries enjoy high levels of energy independence.

(c) Domestic Politics

Domestic politics often pose obstacles to the ratification and sustainability of joint development agreements. Factors in this category include extreme popular nationalism, the difficulty of brokering consensus among domestic governmental agencies, and objections from opposition parties or domestic movements against joint development. These factors could not only impede the ratification of the agreement by the relevant authorities, but also hamper the implementation of the joint development agreement.

Hypothesis 3: Implementation failure is likely to occur when consensus among domestic stakeholders cannot be achieved.

(d) Foreign Relations

Worsening bilateral relations between the parties of a joint development venture can also disrupt the implementation of the agreement. Breakdowns in bilateral relations may either be directly related to the joint development project (such as when a party unilaterally pursues a course of action in the joint development zone) or otherwise. The breakdown in bilateral relations can manifest itself in various ways, ranging from an official diplomatic protest to military posturing.

Hypothesis 4: Implementation failure is likely to occur when bilateral relations between signatory countries have deteriorated.

(e) Third-party Intervention

The intervention of either a third-party claimant state or a non-claimant state can disrupt negotiations for, or the ratification of, the agreement. It could also disrupt the implementation of the joint development venture, particularly with respect to concession contracting.

Hypothesis 5: Implementation failure is likely to occur when there is an intervention by a third party.

(f) Disagreements over the Details of Joint Development

Disagreements can arise between signatories regarding important details of the joint development arrangement, including issues relating to sharing operational costs and revenue distribution, the jurisdiction and boundaries of the joint development zone, the functions of the managing authority and the protection of the marine environment and living resources. These issues may delay or even reverse the process of implementing the joint development agreement.

Hypothesis 6: Implementation failure is likely to occur when disagreements arise concerning the details of the joint development project.

Methodology, Case Selection and Calibration

This study uses Qualitative Comparative Analysis (QCA) (or more specifically, the Crisp-set QCA) to analyse the various configurations of conditions which can explain the failure to implement joint development agreements. QCA is useful when applied to qualitative data in order to explore the individual effect of each factor, and is particularly suitable for studies in which the interaction between the causal conditions and outcomes are not yet well understood and have the potential for theory-building. Furthermore, the number of cases (19) involved in this study fits comfortably within the midrange number (10–50) of case studies that QCA can accommodate.

This study covers nineteen cases of joint development in Europe, Africa, the Asia Pacific and Latin America between 1958 and 2008 (see Table 1 for the cases, conditions and calibration). The dataset excludes joint development agreements whose texts or development activities are not in the public domain, such as the 2005 agreement between China and North Korea. The joint development venture between Thailand and Malaysia is problematic as two separate agreements were signed in 1979 and 1990. In this section, the Thailand-Malaysia case is treated as two different entities, referred to as TLMY79 and TLMY90 respectively. TLMY79 is considered an implementation failure. This distinction is justified by the fact that the 1990 agreement fundamentally changed the underpinnings of the 1979 agreement. In vesting different functions to the Joint Authority and introducing a production sharing contract system, the legal regime established by TLMY90 was significantly different from that

Table 1
Cases, Conditions and Calibrations

Code	Signatory 1	Signatory 2	Year	Failed	Low Oil Price	Energy Independence	Domestic Politics	Worsening Bilateral Relations	Third-party Intervention	Disagreements over Arrangements
BRSA58	Bahrain	Saudi Arabia	1958	0	1	1	0	0	0	0
NLGE62	Netherlands	West Germany	1962	0	1	0	0	0	0	0
KWSA65	Kuwait	Saudi Arabia	1965	0	1	1	0	0	0	0
IRIR67	Iran	Iraq	1967	0	1	1	0	0	0	0
IRSI71	Iraq	Sharjah	1971	1	1	1	0	1	0	0
JPKR74	Japan	South Korea	1974	0	0	0	0	0	1	0
SDSA74	Sudan	Saudi Arabia	1974	0	0	0	0	0	0	0
TLMY79	Thailand	Malaysia	1979	1	0	0	0	1	1	1
VTGB82	Vietnam	Cambodia	1982	1	0	0	0	0	1	0
TNLB88	Tunisia	Libya	1988	0	1	1	0	0	0	0
AUID89	Australia	Indonesia	1989	0	1	1	0	0	1	0
TLMY90	Thailand	Malaysia	1990	0	0	0	1	0	1	0
MYVT92	Malaysia	Vietnam	1992	0	1	0	0	0	0	0
CLJM93	Columbia	Jamaica	1993	1	1	0	0	0	0	0
ENAG95	UK	Argentina	1995	1	1	1	1	1	0	0
THCB01	Thailand	Cambodia	2001	1	1	0	0	1	0	1
NGSP01	Nigeria	STP	2001	0	1	0	0	0	0	0
AUFT01	Australia	Timor-Leste	2001	0	1	1	0	0	0	0
CNJP08	China	Japan	2008	1	0	0	1	1	0	1

of TLMY79, implying the two parties' intention to discontinue the latter.

In this study, six hypotheses were tested.⁴⁰ For Hypothesis 1, the economic incentive is represented by the price of global crude oil, as adjusted for inflation using the Consumer Price Index provided by the US Bureau of Labor Statistics. The median price of global crude oil between 1962 and 2018 was US\$39.49 per barrel. This serves as the binary threshold for calibration.

For Hypothesis 2, energy independence is measured by the ratio between the country's energy consumption and energy production in the year the joint development agreement was signed. If the energy independence ratio of both signatories are below 1, or both signatories are net energy exporters, then the energy independence is calibrated as 1, which denotes that the signatories do not need to address their energy security needs urgently through the joint development of a hydrocarbon bloc. The energy production and consumption data for 1980 to 2016 are from the US Energy Information Administration (EIA),⁴¹ while data relating to energy imports and consumption are from the World Bank.⁴²

The calibration for Hypotheses 3 to 6 is determined by substantive knowledge of the various cases. Since these conditions are highly qualitative and rooted in context, it is difficult to calibrate using a universal quantitative standard. If the disincentives in the hypotheses did occur and were documented in research papers or analytical articles in newspapers or online sources, the corresponding condition for that case will be calibrated as 1.

The outcome (i.e. implementation failure) is calibrated by examining whether either of the following two conditions is fulfilled: signatories do not achieve substantive progress within five years of the agreement taking effect, or the agreement is either unilaterally or mutually terminated. This threshold provides for clear calibration in most cases. However, the 1974 agreement between Japan and South Korea, which has remained inactive since early 1990s, is a special case. This case is calibrated as a non-failure because both countries succeeded in creating a viable plan to authorize concessionaires to manage the joint development and conduct exploration activities in the joint development zone beginning in 1980.⁴³ The agreement was only terminated because the countries did not find any lucrative oil reserves. Among the nineteen cases under examination, seven were calibrated as an implementation failure: Iran-Sharjah 1971, Thailand-Malaysia 1979, Vietnam-Cambodia 1982, Columbia-Jamaica 1993, UK-Argentina 1995, Thailand-Cambodia 2001 and China-Japan 2008.

Unravelling the Myth of Political Will

The analysis of the cases finds that worsening bilateral relations is the necessary condition for the failure to implement joint development schemes, while economic incentives, energy security, domestic politics, third-party intervention and disagreements on the details of joint development lack consistent and stable correlations with the outcome. The nineteen cases were analysed in the following sequence: constructing a truth table; creating pathways to bridge conditions and outcomes through minimization; and analysing the necessary conditions.

The truth table (see Table 2) presents the configurations of conditions that correspond to the outcome of an implementation failure. The cases of the 1982 Vietnam-Cambodia agreement and the 1993 Columbia-Jamaica agreement are deleted from the truth table as they provide contradicting observations. According to the analytical procedure of QCA, if the contradicting observations cannot be resolved, the observation should be deleted and instead interpreted separately using a qualitative-historical, case-specific, approach.

In this instance, Schofield has argued that the 1982 Vietnam-Cambodia agreement has a “very different character” compared to other joint development schemes.⁴⁴ The main objective of the agreement was not so much to develop the hydrocarbon resources in the area, but to confirm their respective sovereignty over islands that had previously been disputed, and which had the effect of reducing the area of overlapping maritime claims between the parties. The agreement also facilitated the integration of the parties’ baseline claims. Therefore, the conventional logic of joint development do not apply to the 1982 Vietnam-Cambodia agreement, since its main objective was political rather than economic.

The 1993 Colombia-Jamaica agreement is the other contradictory case. While the agreement is still valid, Colombia and Jamaica have deferred its implementation without explanation.⁴⁵

After the minimization procedure, five prime implicants or “pathways” leading from the conditions to an implementation failure can be established. These “pathways” mean that when each of the conditions or combination of conditions occurs, the outcome will occur as well (consistency = 1). However, this does not suggest that the pathway is the only cause for such an outcome. In other words, these pathways are equivalent to sufficient conditions.

Table 2
Truth Table

<i>Cases</i>	<i>Low Oil Price</i>	<i>Energy Independent</i>	<i>Domestic Politics</i>	<i>Worsened Bilateral Relations</i>	<i>Third party Intervention</i>	<i>Disagreement on Arrangement</i>	<i>Outcome (Failed as 1)</i>
SDSA74	0	0	0	0	0	0	0
JKR74	0	0	0	0	1	0	0
TLMY79	0	0	0	1	1	1	1
TLMY90	0	0	1	0	1	0	0
CNJP08	0	0	1	1	0	1	1
NLGE62, MYVT92, NGSP01	1	0	0	0	0	0	0
THCB01	1	0	0	1	0	1	1
KWSA65, IRIR67, AUET01, BRSA58, TNLB88	1	1	0	0	0	0	0
AUID89	1	1	0	0	1	0	0
IRSJ71	1	1	0	1	0	0	1
ENAG95	1	1	1	1	0	0	1

- (1) Low oil price * Domestic Politics \Rightarrow Failed implementation
- (2) Energy independence * Domestic Politics \Rightarrow Failed implementation
- (3) Domestic Politics * Third-party intervention \Rightarrow Failed implementation
- (4) Worsening bilateral relations \Rightarrow Failed implementation
- (5) Disagreements over the arrangements \Rightarrow Failed implementation

On further analysis, the only necessary condition associated with a failed implementation is worsening bilateral relations with a consistency score at 1.000000⁴⁶ and a coverage score at 1.000000. The other conditions fail the test of consistency and coverage (see Table 3).

Table 3
Analysis of Necessary Conditions

<i>Condition</i>	<i>Consistency</i>	<i>Coverage</i>
Low oil price	0.600000	0.250000
~Low oil price	0.400000	0.400000
Energy independent	0.400000	0.250000
~Energy independent	0.600000	0.333333
Domestic politics	0.400000	0.666667
~Domestic politics	0.600000	0.214286
Worsened bilateral relations	1.000000	1.000000
~Worsened bilateral relations	0.000000	0.000000
Third-party intervention	0.200000	0.250000
~Third-party intervention	0.800000	0.307692
Disagreement over arrangements	0.600000	1.000000
~Disagreement over arrangements	0.400000	0.142857

* ~ represents the negation of the condition.

The analysis of sufficient and necessary conditions shows that the deterioration of bilateral relations is both a necessary and sufficient condition for an implementation failure. Thus, it suffices to say that the deterioration of bilateral relations is the cause of an implementation failure.

As previously discussed, the deterioration of bilateral relations that leads to an implementation failure can be precipitated by incidents that are either independent of or directly related to the joint development venture. Whatever the precipitating causal issue, worsening bilateral relations exert a negative influence on the implementation of joint development agreements. Among the various instances of failed implementations, boundary disputes relating to the joint development zones were the cause of worsening bilateral relations in the cases of Malaysia-Thailand 1979,⁴⁷ China-Japan 2008,⁴⁸ Iran-Sharjah 1971⁴⁹ and UK-Argentina 1995.⁵⁰ However, the implementation failure of Thailand-Cambodia 2001 is the result of worsening relations arising from the dispute over their land border rather than an issue related to the joint development zone.⁵¹

The result shows that despite the provisional nature of joint development, which is non-prejudicial to delimitation claims, signatory states are exceptionally cautious in determining the boundaries of the joint development zone. For some states, establishing and acknowledging the boundaries of the joint development zone might appear as an act of conceding their territorial claims. To shelve concerns about the boundary dispute and engage in joint development is thus easier said than done.

Implications for the South China Sea Dispute

Schofield and Townsend-Gault argue that “Maritime joint development is not a panacea to be applied simply because overlapping claims to maritime jurisdiction exist ... an agreement in principle on maritime co-operation represents only the start of a potentially arduous, but potentially also hugely rewarding, journey for the States involved.”⁵² International legal experts generally concur that the failure of joint development is often due to factors unrelated to the legal text of the agreement. Despite the numerous factors which purportedly explain the failure of joint development, this article demonstrates that worsening bilateral relations between signatory parties is highly detrimental to joint development. Moreover, in most of the cases, the breakdown in bilateral relations transpired out of the very same disputes which the countries had initially sought to address through joint development.

Perhaps the most interesting finding of this study is the factors it does not find relevant in explaining implementation failures. The study suggests that the lack of economic incentives due to low oil prices, the lack of a domestic consensus, energy independence, third-party

intervention and disagreement over the details of the joint development, either individually or in combination, do not detrimentally affect the implementation of joint development in most cases. However, in a few cases which deserve individual analysis, while these factors do not lead to an implementation failure as defined in this article, they can exert an impact and cause an impasse in implementation.

The finding of this study is relevant to the territorial and maritime boundary disputes in the South China Sea which are unlikely to be resolved in the near future. Furthermore, the discovery of offshore hydrocarbon resources has raised the stakes of the dispute. According to China's Ministry of Land and Resources, the South China Sea has over 200 oil and gas bearing structures and 180 hydrocarbon resource fields, leading some Chinese observers to describe the area as a "second Persian Gulf".⁵³ Many policy analysts have thus suggested joint development as a solution to prevent conflict and resolve the deadlock in the disputed waters of the South China Sea.⁵⁴ In an ideal scenario, this would generate momentum towards settling the boundary disputes.

One encouraging factor for joint development in the South China Sea is the fact that many of the claimant states have experience of engaging in either joint development or cooperative development (the latter referring to more elastic arrangements to develop areas that are not necessarily, but could be, affected by boundary disputes). The joint development agreements signed between Malaysia and Thailand, Cambodia and Vietnam, Malaysia and Vietnam, as well as the establishment of a commercial arrangement area in 2009 between Brunei and Malaysia, have provided these claimant states with the necessary experience and knowledge to effectively manage delimitation disputes.⁵⁵ The collective wisdom of these countries can and should be harnessed for the future joint development of the South China Sea.

For decades, China has been keen to promote joint exploration and exploitation of offshore hydrocarbon resources in disputed areas. The idea was first suggested by China's paramount leader Deng Xiaoping in 1978 as a possible solution to the Sino-Japanese dispute over the Senkaku/Diaoyu Islands. In recent years, China has actively demonstrated an interest in pursuing joint development in the South China Sea, especially with the Philippines. In March 2005, the Philippine National Oil Company (PNOC), the China National Offshore Oil Corporation (CNOOC) and PetroVietnam signed a Tripartite Agreement for Joint Marine Scientific Research in Certain Areas in the South China Sea, also known as the JMSU. However, as noted

earlier in this article, the JMSU lapsed in 2008 due to criticism in the Philippines that the agreement was unconstitutional. The two countries' attempt to re-initiate the joint exploration of Reed Bank in 2012 also failed due to similar reasons.⁵⁶ However, under the administration of President Rodrigo Duterte, both countries have committed to another attempt at joint development by signing a Memorandum of Understanding on Cooperation on Oil and Gas Development in November 2018.⁵⁷ During Duterte's visit to China in August 2019, President Xi Jinping reiterated his desire to make greater strides in the joint development of offshore oil and gas in the South China Sea.⁵⁸ It should thus be recognized that China's strategic intention and policy regarding the joint development of hydrocarbon resources have been consistent for decades, even if its previous attempts have not been successful.

This article's findings can shed light on how to avoid implementation failures in joint development in the South China Sea. However, they do not amount to the claim that the mere absence of the sufficient conditions for implementation failure would guarantee a successful outcome. The logic of asymmetry in QCA dictates that "the occurrence of a phenomenon and its nonoccurrence require separate analyses and explanations".⁵⁹ Hence, the success of joint development may derive from a separate configuration of conditions, rather than from the absence of the causal condition that leads to implementation failure. With this caveat in mind, there are lessons that claimant states in the South China Sea can draw from the cases of joint development failures. Since worsening bilateral relations are central to implementation failures, it is imperative to nurture and maintain friendly bilateral relationships between countries which wish to pursue joint development.

There are policy repercussions when we recognize that friendly bilateral relations is the prerequisite for the successful implementation of joint development, rather than vice versa. Some analysts have suggested that undertaking joint development results in improved relations between claimant states, paving the way for an agreement on boundary delimitation. This claim is only valid if the joint development is successfully implemented. However, as this study demonstrates, the effective implementation of joint development can only be obtained if cordial relations already exist. Hence, instead of hoping for a joint development venture to improve relations between claimant states, it is more important instead to prioritize efforts to nurture and maintain good bilateral relations prior to undertaking a joint development venture.

Moreover, there are currently only two mutually exclusive mechanisms to manage the various South China Sea disputes in the short term: boundary delimitation or joint development. Because many Southeast Asian countries are suspicious of China's strategic intentions and aggressive policies in the South China Sea, it will be nearly impossible for claimant states to follow the example of Malaysia and Brunei which simultaneously advanced cooperative development and established an agreement on maritime boundaries in 2009. The claimant states should therefore have a clear vision of their policy orientation, which means choosing either delimitation or joint development as a priority.

If the countries in the South China Sea choose to engage in joint development for mutual economic benefits, it is important for them to engage in good faith and to avoid using joint development as a pretext to consolidate their respective boundary claims or to trap other signatory states into confirming the status of "dispute" by referring to the definition of "joint development" and hoping that other signatory states would acquiesce. Such actions may undermine mutual trust, jeopardize any provisional arrangements and make future negotiations more difficult. The 2008 agreement between Japan and China was eventually unsuccessful due to the war of words between China and Japan over the delimitation of the joint development zone. China wanted to include the sea near the Senkaku/Diaoyu Islands but Japan demanded that joint development take place along the median line of the East China Sea including four oil and gas reserves west of that line, namely Chunxiao/Shirakaba, Duanqiao/Kusunoki, Tianwaitian/Kashi and Longjing/Asunaro.⁶⁰ Both China and Japan proposed the delimitation plan to back their own territorial claim, and showed little sincerity to truly make a viable plan to develop together.

Moreover, even though joint development is provisional and does not prejudice the outcome of a final delimitation, signatory states could also introduce into the agreement terms reaffirming the non-prejudicial nature of the joint development. The agreement should therefore employ less controversial wording, such as the more inclusive "collaborative development" or "cooperation in oil and gas development" rather than the term "joint development" in order to avoid the latter's connotation that the area in question is a "disputed" one.

The 2018 agreement between China and the Philippines is a good example of setting aside the dispute in favour of cooperating for mutual economic gains. Jay Batongbacal argues that the text of the

memorandum suggests that the two parties will proceed with different arrangements for disputed and undisputed areas. The memorandum also seems to indicate that the South China Sea remains “disputed” rather than “settled”, which means that the Duterte administration may not be, at least temporarily, insisting on the full compliance of the 2016 Arbitral Tribunal award, which ruled that China’s nine-dash line was incompatible with UNCLOS.⁶¹ China has returned the favour by allocating 60 per cent of the revenue of the joint development to the Philippines. Hence, if joint development was seen in economic rather than geopolitical terms, this could encourage claimant states to shelve their territorial disputes to pursue joint development. However, this would require a spirit of reciprocity between the states: a diplomatic process of give-and-take on the basis of mutual respect and equality.

Also, as this study has indicated, because worsening bilateral relations—which are often caused by the boundary dispute itself—are detrimental to joint development, it is imperative for claimant states to agree on a set of binding rules to regulate every claimant’s actions in the South China Sea in order to create a regional environment conducive to joint development. Although China and Southeast Asian countries have forged closer ties in recent years, especially in trade and infrastructure cooperation, the South China Sea dispute remains a major risk that can undermine regional peace and stability. Southeast Asian countries generally view the presence of the Chinese navy and the construction of artificial islands in the Spratlys as aggressive, and they have responded with diplomatic protests, the threat of legal action and by conducting military exercises and enhancing their defence relationships with the United States and other major powers.⁶² The 2016 Arbitral Tribunal ruling brought Sino-Philippine relations to a low point. The unsettled dispute in the South China Sea can also generate divisions among ASEAN members, as seen in the deadlocks during the ASEAN Foreign Ministers’ Meetings in 2012 and 2016 when disagreements emerged as to whether to address the South China Sea issue in the final communiqués.

As such, establishing a code of conduct to regulate the behaviour of regional states in the South China Sea must be prioritized to ease tensions between China and the ASEAN members. The 2002 Declaration on the Conduct of Parties in the South China Sea (DoC) was considered as a major step towards the peaceful management of the dispute by claimant states. Vietnam has frequently cited the DoC to protest against China’s assertive actions in the South China Sea.⁶³ The Code of Conduct (CoC) for the South China Sea, which

is currently being negotiated by ASEAN and China, is expected to facilitate the “prevention, management, and settlement of disputes” in the area,⁶⁴ with the introduction of more binding rules to regulate the actions of the parties involved. However, talks between China and ASEAN on the CoC have proceeded at a very slow pace. Moreover, given the escalating strategic rivalry between the United States and China,⁶⁵ Southeast Asian countries are facing increasing pressure to choose between the two major powers. This can endanger the current relative peace in the South China Sea. Therefore, there is an urgent need to finalize the CoC in order to maintain peace and stability in the South China Sea, and to minimize the repercussions of the changing international order for all relevant parties.

Conclusion

This article has addressed the factors which lead to the failed implementation of joint development agreements. Drawing on the logic and method of QCA, it examines nineteen joint development ventures between 1958 and 2008 to test the causal relations of six conditions. It concludes that the only causally-related condition is the deterioration of bilateral relations, often arising from the maritime boundary dispute that the joint development agreement was supposed to manage. In contrast to conventional opinions expressed in the existing literature, the other five conditions, i.e. lack of economic incentives, energy independence, domestic opposition, third-party intervention and disagreements over the details of the project, do not show any correlated pattern with the failure to implement joint development agreements.

The article’s findings are important to the management of the disputes in the South China Sea. It is emphasized that the two options to resolve boundary disputes, i.e. delimitation and joint development, are mutually exclusive. If a claimant country decides to prioritize the economic objective and conduct joint development, it is highly imperative to make peace with other claimant states. Many measures can be taken to achieve that goal, but the most important are respecting the other country’s boundary claims, accepting the “disputed” status of the South China Sea, and also making a set of binding rules to regulate the actions of all the claimants. To that end, littoral states should not pursue joint development agreements as a false pretext to secretly consolidate their maritime boundary claims. To avoid the controversies arising from the definition of joint development, it is suggested to use terms such as “collaborative

development” or “cooperation in oil and gas development” to reinforce the non-prejudicial nature of the joint development. Furthermore, successful negotiations for a Code of Conduct for the South China Sea may help to create a peaceful atmosphere for claimant states to agree on the joint development of offshore hydrocarbon resources.

NOTES

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- ⁷ Clive H. Schofield, “No Panacea? Challenges in the Application of Provisional Arrangements of a Practical Nature”, in *Maritime Border Diplomacy*, edited by Myron H. Nordquist and John Norton Moore (Leiden, The Netherlands: Martinus Nijhoff Publishers, 2012), p. 157.
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- ¹³ Prashanth Parameswaran, "The Danger of China-Philippines South China Sea Joint Development", *The Diplomat*, 27 July 2017, <https://thediplomat.com/2017/07/the-danger-of-china-philippines-south-china-sea-joint-development/>.
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- 45 "JA/Colombia Oil Exploration on Hold", *RJR News*, 23 December 2010, <http://rjrnewsonline.com/business/jacolombia-oil-exploration-on-hold>.

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- ⁴⁸ The 2008 agreement between China and Japan was affected by boundary issues as well as other diplomatic conflicts. Japan's Minister of Foreign Affairs protested China's resumption of development activities in the Chunxiao/Shirakaba natural gas field in 2010, although China insisted that it possessed sovereign rights in the area. The diplomatic tension escalated after the collision of a Chinese fishing boat and a Japanese coast guard ship in September 2010 and Japan's purchase of Uotsuri Island, one of the disputed Senkaku/Diaoyu Islands in 2012. See Yang, "The Principle of Shelving Disputes", p. 71.
- ⁴⁹ Iran and the Ruler of Sharjah signed a Memorandum of Understanding on 29 November 1971 to establish a revenue-sharing arrangement over the territorial sea near the island of Abu Musa. A day later on 30 November 1971, Iran seized control of islands. See Dorota Marianna Banaszewska, "The Legal Status of Greater and Lesser Tunbs Islands Including a Brief History of the Legal Dispute", in *Operational Law in International Straits and Current Maritime Security Challenges*, edited by Jörg Schildknecht, Rebecca Dickey, Martin Fink, and Lisa Ferris (Cham, Switzerland: Springer, 2018), p. 89. Abu Musa remains the subject of a dispute between Iran and the Emirate of Sharjah.
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- ⁵⁵ Schofield, “Unlocking the Seabed Resources”, p. 290.
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