The Panarchy of Peace

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Mark R. Mason

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This thesis titled
THE PANARCHY OF PEACE

by
MARK R. MASON

has been approved for
the Center for International Studies by

__________________________________________

Elizabeth F. Collins
Associate Professor of Classics and World Religions

__________________________________________

Jieli Li
Director, International Development Studies

__________________________________________

Drew McDaniel
Interim Director, Center for International Studies
ABSTRACT


The Panarchy of Peace (159 pp.)

Director of Thesis: Elizabeth F. Collins

Panarchy theory has been utilized to first conceptualize the entrenched conflict that lasted for nearly 30 years between Aceh and Indonesia and second, the development of peace prior to and shortly following the tsunami of 2004. The purpose of this paper is to show how panarchy or complex adaptive systems theory can be used to explain the previous state of the Aceh-Indonesia conflict as a sustained maladaptive system and how it was eventually changed into an adaptive system harboring the potential for peaceful sustainability. There are four main questions that this thesis answers. First, how can the Aceh-Indonesia conflict be explained as a rigidity trap? Second, what were the main elements or inputs from cyclical systems below or above the Aceh-Indonesia conflict scale that led to the collapse of the rigidity trap and the generation of a healthy or complex adaptive system? Third, what role, if any, did the tsunami of December 2004 play in achieving the peace of the new complex adaptive system and fourth, what elements or inputs into the new healthy system may or may not lead to the systems peaceful sustainability? The conflict and the peace achieved between the two former antagonists appears to be an example of a maladapted cyclical socio-economic and political rigidity trap that was acted upon by new inputs from cyclical scales above the Aceh-Indonesia conflict scale. It is thought that this is the first time panarchy theory has been applied to an aspect of conflict transformation modeling. It is hoped that this initial
attempt will encourage others to test panarchy theory; maladaptive and adaptive system models, in the field of conflict transformation.

Approved: _____________________________________________________________

Elizabeth F. Collins

Associate Professor of Classics & World Religions
ACKNOWLEDGMENTS

Much appreciation is due to the following people and organizations for their assistance, direction and hospitality: to Dr. Jieli Li, Director of the International Development Studies program at Ohio University, whose decision to partially fund my attendance to the Alliance for Conflict Transformation summer institute at the University of Indonesia enabled my interest in the Aceh-Indonesia conflict to develop past books; to Dr. Dauda Abubakar for reigniting my interest in global governance and political conflict issues; to Dr. Bernard for introducing panarchy theory and exercising the kindest blend of constructive advice it has been my pleasure to experience in academia; to Dr. Collins for her inspiration, depth of knowledge on Indonesia and firm task mastering I required to make regular progress; to Dr. Imam and Gitayna Prasodjo for a wealth of contacts, a place to call home in Jakarta and Banda, and much laughter; to all the intensely engaging individuals of Gerakan Aceh Merdeka, the Tentara Nasional Indonesia, the Government Of Indonesia, and practitioners in the international development field in Jakarta and Aceh, from organizations such as International Organization for Migration, United States Agency for International Development, The Asia Foundation and Chemonics who agreed to sit for interviews and to all those who assisted and supported my research, this paper would not have been possible without you. Thank you. While I have endeavored to be accurate with the use of all quotes and meanings from interviews and analysis of material, any mistakes included within the text are mine and not of the participants or thesis advisors.
for

Kanokwan

รักเดียว ใจเดียว

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<tr>
<td>ACT</td>
<td>Alliance for Conflict Transformation</td>
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<tr>
<td>Adat</td>
<td>Regional or local area common law in Indonesia</td>
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<tr>
<td>AMM</td>
<td>Aceh Monitoring Mission</td>
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<tr>
<td>BRA</td>
<td>Bandan Reintegrasi Aceh / Aceh Reintegration Agency</td>
</tr>
<tr>
<td>BRR</td>
<td>Bandan Rehabilitasi dan Rekonstruksi Aceh / Acne Rehabilitation and Reconstruction Agency</td>
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<td>CERIC</td>
<td>Center for Research on the Inter-group Relations and Conflict Resolution, University of Indonesia</td>
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<td>CoHA</td>
<td>Cessation of Hostilities Agreement 2002</td>
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<td>CRS</td>
<td>Conflict Resolution Specialists</td>
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<tr>
<td>DPR</td>
<td>Dewan Perwakilan Rakyat / People’s Representative Council</td>
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<tr>
<td>Forbes Damai</td>
<td>Forum Bersama Demainan / Joint Peace Forum</td>
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<td>GAM</td>
<td>Gerakan Aceh Merdeka / Free Aceh Movement</td>
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<td>GOI</td>
<td>Government of Indonesia</td>
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<tr>
<td>HDC</td>
<td>Henri Dunart Center</td>
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<td>HP</td>
<td>Joint Understanding on Humanitarian Pause for Aceh 2000</td>
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<td>IDP</td>
<td>International Development Practitioners</td>
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<td>ICG</td>
<td>International Crisis Group</td>
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<td>IOM</td>
<td>International Organization of Migration</td>
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<tr>
<td>KOPASSUS</td>
<td>Komando Pasukan Khusus / Army Special Commando Forces</td>
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<td>MOU</td>
<td>Memorandum of Understanding (August 15, 2005 between the Government of Indonesia and GAM)</td>
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<td>Full Form</td>
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<td>MPR</td>
<td>Majelis Permusyaearatan Rakyat / People’s Consultative Assembly</td>
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<td>MV</td>
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<td>NAD</td>
<td>Nanggore Aceh Darussalam (formal name of Aceh province)</td>
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<td>New Order</td>
<td>Suharto governmental era</td>
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<tr>
<td>Old Order</td>
<td>Sukarno governmental era</td>
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<tr>
<td>Polari</td>
<td>Indonesian National Police</td>
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<td>SBY</td>
<td>Susilo Bambang Yudhoyono, President of Indonesia</td>
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<td>TAF</td>
<td>The Asia Foundation</td>
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<tr>
<td>Tenku</td>
<td>Title of Malay aristocrat</td>
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<td>Teungku</td>
<td>Title of an ulama or a respectful form of address for Acehnese men</td>
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<tr>
<td>TNI</td>
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<tr>
<td>Ulama</td>
<td>Islamic religious leaders / leadership</td>
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<tr>
<td>Uleebelang</td>
<td>Acehnese land owning aristocracy</td>
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<td>UN</td>
<td>United Nations</td>
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**Adaptability** is the capacity of a system to manage resilience in relation to alternate regimes (sometimes called adaptive capacity). It involves either or both of two abilities: 1) the ability to determine the trajectory of the system state - the position within its current basin of attraction; 2) the ability to alter the shape of the basins, that is move the positions of thresholds or make the system more or less resistant to perturbation. The abilities to effect both of these are determined by a combination of attributes of both the social domain and the ecosystem.

**Adaptive Cycles** are never static, and they tend to move through four, recurring phases. Generally, the pattern of change is a sequence from a rapid growth phase to a conservation phase in which resources are increasingly unavailable, locked up in existing structures, followed by a release phase that quickly moves into a phase of reorganization, and thence into another growth phase.

**(a) Alpha Phase** One of the four phases of the adaptive cycle. A phase in which the system reorganizes following some sort of disturbance and a time for innovation and restructuring.

**Complex Adaptive System** Systems of people and nature in which complexity emerges from a small set of critical processes which create and maintain the self-organizing properties of the system.

**Connectedness** this property reflects the strength of internal connections that mediate and regulate the influences between inside processes and the outside world- essentially the degree of internal control that a system can exert over external variability.

**(K) Conservation Phase** One of four phases of the adaptive cycle. A period where slower growth rates occur and contest competition (i.e., resources become divided and sequestered to separate uses) flourishes. Also referred to as the conservation phase as resources are conserved and tend to be bound up in the system's structure.

**Cross-Scale Dynamics** Interactions and influences between systems at one scale and those at another scale are embedded. No system can be understood or managed by focusing on it at a single scale. All systems exist and function at multiple scales of space, time and social organization, and the interactions across scales are fundamentally important in determining the dynamics of the system at any particular focal scale. This interacting set of hierarchically structured scales has been termed a “panarchy”.

**Flip / Transformation** In cases where a system is already in an undesirable regime and efforts to get it back into a desirable regime are no longer possible (or worse, make the undesirable basin larger), one option for resolving the predicament is transformation or
flipping into a different kind of system - new variables, new ways of making a living, different scales - a different panarchy.

**(r) Growth / Exploitation Phase** One of four phases of the adaptive cycle. A period where rapid growth of capital (and potential) occurs and scramble competition succeeds. Also referred to as the growth or exploitation phase.

**Leakiness / Leakage** this property is primarily associated with the experimental \(\alpha\) phase due to that phases’ condition of low connectedness or limited ability at internal regulation. The \(\alpha\) phase is characterized by large amounts of system material from the release at the \(\Omega\) phase and crossing scale material. As new arrangements are tested toward sustainability and found to fail, this material is dropped or leaked from the system despite the fact that much of the material could be beneficial if combined in a different arrangement.

**Material** Refers to the resources or theoretical inputs such as releases and cross scale movement within the complex adaptive system. Material can come in a variety of forms - ideas, information or knowledge, energy, capital, a movement, the substances that produce active change or actively limit change.

**Maladaptive Cycle** Where a cycle domain of panarchy no longer flows material through all four phases of a healthy adaptive cycle. Such as a rigidity or poverty trap.

**Nested Hierarchies** Semi-autonomous levels that form from the interactions among a set of variables that share similar speeds [and geometric spatial attributes].

**(Ω) Omega Phase** One of four phases in the adaptive cycle. The omega phase is one of release or ‘creative destruction’, when tightly bound resources become increasingly fragile and then are suddenly released.

\(\infty\) **Panarchy** is a system theory of linked hierarchically arranged complex adaptive cycles that represent the cross-scale dynamic interactions among levels of cyclical systems that considers the interplay between change and persistence.

**Poverty Trap** An impoverished system state where low connectedness, low potential (system wealth) and low resilience are the dominant conditions. Poverty traps are systems that continually eradicate potential and diversity until sustainable development or adaptability can not occur. Once at the breaking point, these systems will collapse and a new system will be generated- see flip / transformation.

**Remember** this property represents a recognized connection between levels. When a domain /system at one level enters the \(\alpha\) phase, the accumulated material from a larger slower level above can cascade down to the next smaller faster moving system below facilitating renewal (reorganization) by drawing on the larger levels stored potential.
**Resilience** is the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks. A measure of resilience is the magnitude of disturbance that can be experienced without the system flipping into another state or stability domain.

**Revolt** this property represents a recognized connection between levels. When a domain / system at one level enters the $(\Omega)$ phase the release of material can cascade up to the next larger slower moving system above triggering a crisis or change. Alternatively, a fast small event at one level overwhelms a larger slower domain at another level.

**Rigidity Trap** A system state with an abundance of wealth, a great degree of connectedness (internal regulation) and high levels of resiliency to external disturbance are the dominant conditions. These systems persist beyond the point of adaptability due to perverse resiliency that preserves or maintains this non-adaptive state. Change is either smothered or ejected but never absorbed and utilized.

**System Wealth** this property is often identified as the potential for change. The inherent potential of a system that is available for change, since that potential determines the range of future options possible. Ecosystem potential could be represented by potential productivity provided by the amount of biomass, physical structure and nutrients accumulated from ecosystem dynamics. Social or cultural potential could be represented by the character of the accumulated networks of relationships- friendships, mutual respect and trust among people and between people and institutions of governance. In an economy, potential could be represented by the economic potential provided by the accumulated usable knowledge, inventions, and skills that are available and accessible.

**State** The state of a system at any time is defined by the values (amounts) of the variables that constitute the system.

**Trigger(s)** are essentially agents of change as well as agents that limit or halt change. Triggers can be agents of disturbance from both outside and inside a system such as wind, fire, disease, drought, insect outbreaks, labor strikes, market crashes, and wars. Human system triggers tend to occur when rigidities are accumulated to the point of crisis and then attempt restructure. Triggers can also be designed or built into a system such as regular elections for a government or rotational changes in corporate leadership that attempt to guarantee sustainable development.

*Concept definitions are taken from or compiled from The Resilience Alliance 2008, Panarchy; Understanding Transformations in Human and Natural Systems by Gunderson and Holling 2002, Understanding the Complexity of Economic, Ecological and Social Systems Holling 2001 and The Sustainability Scale Project 2003.*
METHODOLOGY

First, this paper has been researched using a historical review of the Aceh-Indonesia conflict. Second, interviews were conducted in Jakarta and Aceh with over twenty participants employing the guided interview approach. This approach maintains a question protocol of discussion topics that are not subject to any specific order and questions can be reworded as necessary. Analysis of responses utilized interview notes and transcripts of digital audio recordings. Analysis of interviews were organized first as nodes (individuals) and then placed into five (5) groups. These groups were the Conflict Resolution Specialists (CRS) 3 individuals, the Tentara Nasional Indonesia or the Indonesia Military (TNI) 2 individuals, the Government of Indonesia (GOI) 2 individuals, the Gerakan Aceh Merdeka (GAM) or the Aceh Freedom Movement 5 individuals, and the International Development Practitioners (IDP) 9 individuals. The IDP group includes seven (7) long time development workers who have specialized in Indonesia and whose expertise lay in the areas of governance, human rights, anti-corruption, relief, community development and gender development. See appendix for names of interviewees and their relative importance. While there were many categories that have informed the thesis, ten (10) categories were specially selected for analysis. These categories were the tsunami, natural resources, president and former general Susilo Bambang Yudhyono, Sharia law, the Aceh-Jakarta relationship, concerns for the new Aceh provincial administration, the role of internationals, the Aceh Monitoring Mission, potential conflict renewal and sustainable peace. Lastly, panarchy theory or complex
adaptive system theory was engaged as the explanatory or conceptual framework in the analysis of the thesis.
I was first drawn to panarchy while investigating different elements of deforestation dynamics in Indonesia. There were many variables involved with the rapid loss of Indonesia’s lowland forest cover in Sumatra and Kalimantan. These elements included human activity, government policies, fire science and the natural weather system of El Nino. While I could detail each element’s effects on forest cover, and recognize a synergy, it was difficult to follow the interplay of these variables as they acted through very different systems. Panarchy offered a robust, complex and yet easy to understand systems model and theory that provided for the interplay of these various elements at different scales. In the summer of 2006 I attended an institute co-organized by the Alliance for Conflict Transformation (ACT) and the Center for Research on Inter-group Relations and Conflict Resolution (CERIC) at the University of Indonesia that instructed and exercised its participants in the basic theories and practices of conflict resolution and peace building. While participating in this institute I was struck by how applicable complex adaptive systems theory or panarchy seemed to be to the various conflict and peace building situations, political, environmental or economic that we were exposed to in lecture and lab.

Eighteen months prior to this institute the planet’s largest recorded tsunami occurred off the northern coast of Sumatra causing massive devastation from the southwestern peninsula of Thailand to southeastern India, but especially to the northwestern coast of Sumatra, in a province called Aceh. Eight months after the tsunami, a thirty year war
came to a negotiated end. Were the two directly related? Many casual observers say obviously so. Contemporary investigations however point to the limited geographical devastation of the tsunami, which impacted mainly coastal areas and the lowland provincial capital of Banda.

Gerakan Aceh Merdeka (GAM) or the Free Aceh Movement soldiers and field commanders will tell you that while the tsunami destroyed Banda and the western coast settlements, the Indonesian army or Tentara Nasional Indonesia (TNI) was deployed to the hills and highlands hunting for them. As they would explain, the tsunami did not directly affect ground military units already deployed and operating in the mountains. Muhammed Nur Djuli, a senior GAM leader explained, “Just three days after the tsunami, the Indonesian army was moving against our soldiers in the mountains.” Similarly, the Indonesian government states that they did not lose many soldiers to the tsunami, “Not many, maybe just 1500,” said Minister and GOI negotiator Sofyan Djalil. Conventional wisdom regarding the end of hostilities and the success of peace negotiations points to how the Indonesian military offensive, begun in mid 2003 and lasting up until the tsunami hit, had virtually broken GAM as a military fighting force and that the determination and negotiation skills of Vice President Jusuf Kalla prior to and during the talks in Helsinki, Finland were a key factor in obtaining the memorandum of understanding between the Government of Indonesia (GOI) and GAM.
Figure 1: Banda, Aceh Coastal Lowlands Post Tsunami

Figure 2: Takengon, Aceh, Central Highlands
These aspects to the conflict and the peace are important for understanding the interplay of elements within a system but they do not explain how a system of rigid violent conflict endured, then ended and a system of sanguine peace began. The antagonists had tried at least twice previously to obtain peace and failed. Why had they failed? Were there elements that could be identified as significant input materials that sustained a system of violent conflict? Similarly, were there identifiable inputs that could collapse this system of conflict and inputs that generated a new system of peace development? If so, then possibly panarchy theory could provide an explanatory framework for conceptualizing the Aceh-Indonesia conflict, its collapse and its development into a peaceful situation or healthy, non-rigid system. And in turn, this paper could provide a successful example of the usefulness of complex adaptive system theory to the field of conflict resolution and peace building. In short, a new tool for modeling and resolving conflicts elsewhere.

This thesis proposes to apply panarchy or complex adaptive system theory toward two aspects of the Aceh-Indonesia conflict. First, the framework will be applied to the elements that generated and sustained the Aceh-Indonesian conflict that endured for three decades (examining only a brief period of that time). Second, the framework will be applied to elements that were at play prior to and immediately following the tsunami that appear to have ended the conflict. Third, the thesis will examine what significant inputs generated a potentially sustainable peace process where others had failed as well as what phase the Aceh-Indonesia political relationship may be located within their new panarchy system.
I view this thesis as an initial attempt at utilizing panarchy theory in the conflict resolution field, a field I have only a limited degree of training in. The investigation seeks to determine if there has been a panarchy of peace achieved through the interplay of institutional, social conflict and natural systems on the northern tip of Sumatra.

Aceh has had a very unique history. So unique in fact, that its history can often confuse the first time inquisitor. Therefore, prior to engaging the main questions of the thesis and an application of panarchy theory, Chapter 1 will provide a historical brief for the reader. Chapter 2 will then familiarize the reader with panarchy theory. Chapter 3 will describe Aceh’s cycle of violence as a maladaptive sustained rigidity trap. Chapter 4 will propose that the rigidity trap was collapsed by the interplay of forces or what panarchy theory refers to as the exchange of materials, energy, or elements from adaptive complex system cycles both below and above the Aceh-Indonesian conflict system. Chapter 5 will review some of the significant elements that may sustain as well as weaken Aceh’s new complex adaptive system of peace. Chapter 6 will touch on weaknesses of panarchy theory that I encountered and remaining questions for potential future students of conflict transformation and international development.
Figure 3: Map of Indonesia

Graphic obtained from The Australian Parliamentary Library
Figure 4: Map of Aceh

Graphic obtained from The Australian Parliamentary Library
CHAPTER 1: HISTORICAL ACEH
INTRODUCTION

Casual observers of Indonesia’s contemporary changes sometimes wonder why Aceh remained part of Indonesia while East Timor did not. Without delving into the many conditions that assisted East Timor’s separation from Indonesia, it is appropriate to state that there are four main reasons why Aceh has remained part of the Indonesian Republic.

First, the Acehnese were enthusiastically involved in and supported the fight for an independent Indonesia which signaled Aceh’s genuine desire to be part of the new state as World War II came to a close. Second, the Darul Islam rebellion (1953-1959) was negotiated in good faith with the Jakarta based leadership to a conclusion by the majority of the Acehnese leadership, which included student leaders and Muslim religious leaders or ulama in 1957. These negotiations resulted in Aceh becoming a province with “special status” which served to further interweave Aceh’s political, economic and social dynamics as well as its recent history with the rest of Indonesia. Third, beginning in the late 1970s, the Free Aceh Movement leadership that was based abroad was never able to obtain global media coverage or a catalyzing degree of international political support to further their cause. Four, the rapid revolving presidencies that occurred over the course of Indonesia’s recent and possibly still unfinished democratization process, which has often been referred to as the Reformasi period, produced a variety of uncoordinated executive government policy approaches to the Aceh-Indonesia problem. These varied policy initiatives, pursued generally while military operations continued to engage, made obtaining potential transformations of the conflict, including independence, more
difficult. Politically, there were at least two fumbled attempts at cease fires and negotiations that appear to have been doomed from the start due to a lack of thoroughness and a great deal of mistrust. However, as the thesis will explain in Chapter 4, the period of revolving door presidencies (1998-2004) produced a destabilized status quo or a disconnected political environment in which change at the national political scale became possible.

**Indian Ocean Orientation, Sultans and Diplomatic Treaties**

Aceh has had a distinct and unique history dating back to the 15th century. It is often assumed that because Aceh is situated at the northern end of Sumatra that it must have been trading with the seafaring port states of southern Sumatra, Java, Borneo, Sulawesi and other coastal capitals of Southeast Asia. This would be a mistake. Prior to the Dutch invasion in 1873, Aceh’s economic and foreign affairs were orientated to the north and west, toward the Indian Ocean, the Arabian Sea, the Red Sea, the Ottoman Empire and immediately south within the Strait of Malacca from southwest Siam along the coast of the western Malay peninsula to Singapore (Hing 74 2006, Mckinnon 22 2006, Reid 53-56, 2006). This orientation toward Indian Ocean ports and contacts dates back as far as the 14th century. When the Portuguese controlled the southern Strait of Malacca and the north Indian sea lanes, Acehnese prized peppers and spices still found their way to European cities via a more western route through the Maldives Islands and the Red Sea. By the 1560s Aceh’s trade ships rivaled their Portuguese enemies in the spice trade. Furthermore, because of its strategic geographical position Aceh had established itself as
center of commerce, Islamic study and port of embarkation for Muslim pilgrims traveling
to Ottoman controlled Mecca (Reid 55-57, 2006).

Aceh’s Sultanate appears to have begun around 1496 and effectively continued until the
Dutch invasion of 1873. The Sultanate of Aceh experienced several powerful rulers
during its 377 years who expanded territory, increased foreign involvement and made
Aceh religiously significant. Sultan Aladuddin Riayat Shah al-Kahar 1537-1571, Sultan
Aluddin Riayat Shah al-Mukammil 1589-1604 and Sultan Iskandar Muda 1607-1636
were a few of Aceh’s remarkable rulers out of a total of 35 sultans. During this pre
modern period, until about 1790, the Acehnese Sultanate was courted by European
envoys from England, Holland, and France as well as ambassadors from India, Malaya,
and Siam who sought trade rights, diplomatic relations and potential military outposts on
the northern tip of Sumatra (Reid 62, 2006).

The early 1800s witnessed a revival in Aceh’s commercial significance as well as the
Sultanate’s perceived weakness. The British continued to be the most active trading
partner and interested in Aceh’s ports, which resulted in a negotiated mutual defense
treaty with Britain in 1819. This treaty guaranteed Acehnese independence in the region
and the support of the British should any power attempt to colonize it. However, just five
years later, immediately following the Napoleonic Wars, the British and the Dutch
negotiated the London Treaty of 1824 that demarcated each countries sphere’s of
influence in Southeast Asia. Aceh had been consigned to the Dutch sphere of influence
in exchange for the British retention of Singapore. While the British insisted that the independence treaty of 1819 be noted clearly in the London Treaty of 1824, several years prior to the Dutch invasion, it became apparent that Aceh’s independence had been subordinated to larger British interests and that the sphere of influence agreement outweighed the 1819 treaty between Aceh and Britain (Hing 74-91, 2006).

Over the next five decades Aceh remained politically stable, economically vibrant, its capital cosmopolitan and territorially resilient, it even experienced a resurgence in the pepper trade from 1823-1838 and again in the 1850s (Hing 89-92, 2006). However, by the late 1840s the Acehnese Sultanate recognized the growing threat of Dutch power as Holland continued to make advances into Sumatran ports. Sultan Ali Alauddin Mansur Shah’s (1838-1870) reign was characterized by resistance to Dutch activities on the east and west coast of Sumatra. To gain Turkish protection Sultan Mansur desperately sought to reestablish Aceh’s position within the Ottoman Empire as a vassal state. Mansur also attempted military support guarantees from France in the period from 1840-1852 and the United States in 1873 (Reid 63-65, 97, 2006).

In 1871 the British agreed to relinquish their guarantee on Aceh independence in exchange for the acquisition of a fort and effective control of the Gold Coast (Ghana). That same year the Dutch began to pressure Aceh into signing an unequal treaty. Aceh chose to continue to seek military support and its discussions with the US were reason enough for the Dutch to invade Aceh in 1873 (Reid 97, 2006). However, to describe
Aceh as a Dutch colony before the 1930s would be a mistake. For the next thirty years from 1873-1903, the Dutch did little more than militarily occupy the capital of Banda. Acehnese resistance was fierce and the Dutch suffered extremely heavy loses, though mostly from disease. Eventually they were able to control Banda and co-opt the uleebelang (aristocratic land owners), who then further oppressed the common Acehnese. Just prior to the Japanese invasion of 1941, the Acehnese rose up and forced the Dutch out of Banda (Reid 103-105, 2006).

Aceh’s economic and religious Indian Ocean orientation, its four hundred years of sovereign Sultanate political agency as well as its resistance to colonization clearly establish its sovereign development up until this point in history. It’s what happens under Japanese rule and the struggle for independence that join the Acehnese to the newly emerging republic of Indonesian. However, there is no doubt that this long independent sovereign activity and fight against colonialism also developed a strong sense of Acehnese identification.

**Aceh’s Internal Struggle and Efforts in Achieving the Indonesia Republic**

The victory over the Dutch in 1941 had been achieved by the all-Aceh Association of Ulama (PUSA) and its supporters. PUSA had originated from Islamic leaders who headed Acehnese Islamic schools. PUSA was a movement against the uleebelang (wealthy aristocratic land owners) who had been co-opted by the Dutch and who oppressed the common Acehnese more than the Dutch. In 1940, the struggle against the
uleebalang had begun to alter from an Acehnese movement into an Indonesian national movement.

The occupation of the Netherlands by Germany and the advancing Japanese military machine had made the Dutch Aceh colonial administration weak. PUSA leadership recognized that it would be easier to defeat the Dutch and carry on the struggle against the uleebalang if they combined their movement with that of Indonesian nationalism that had been taking shape all over the archipelago. Following the Japanese take-over of Aceh, the uleebalang and PUSA struggled against one another. Both made efforts to use the Japanese military against each other while the Japanese tried to keep the domestic nature of the conflict at play to their advantage (Reid 104-105, 2006).

While the Japanese occupied Aceh they provided military training to young Acehnese men in anticipation of an Allied attack in 1943. When the Japanese surrendered to the Allies in August 1945, they left the uleebalang in charge. PUSA and the military trained Acehnese youth were concerned that the end of the war would mean the return of the Dutch. Again, Indonesian nationalism and the drive for a sovereign republic offered the best resistance. The ulama, led by Teungku Mohammad Daud Beureu’eh, mobilized the Islamic students throughout Aceh and explained that a fight for Indonesian independence was a continuation and expansion of the fight for Aceh’s freedom during the Dutch occupation (Reid 104-105, 2006). Fighting for Aceh in the name of an Indonesia republic meant going to war with the aristocratic land owners. By early 1946 Daud
Beureu’eh and PUSA had beaten the Japanese and the more defiant ulebalang (Reid 106-107, 2006).

It is important to note, in regards to Acehnese identification, that the struggle in Aceh had been two fold. First, it had thrown out the Dutch and the Japanese but more importantly it was also a social revolution against an oppressive upper class. While all of this had been accomplished without any assistance from the republican revolutionary forces in Jakarta, it had been done with a genuine desire to be part of a pan-Indonesian state. In a declaration dated 15 October 1945 four prominent ulama declared that:

Every segment of the population has united in obedience, to stand behind the great leader Ir Sukarno, to await whatever commands or obligations are put before them. It is our firm conviction that this struggle is a sacred struggle which is called Perang Sabil. Believe therefore, fellow countrymen, that this struggle is like a continuation of the former struggle in Aceh which was led by the late Teungku Chik di Tiro and other national heroes (Reid 345-346, 2005).

From 1945-1949 Aceh proved a true and reliable participant in the revolution. Aceh sent hundreds of soldiers to Langkat and Medan in western Sumatra to fight the Dutch forces, bought national bonds to finance the central government in 1946 and bought two supply planes in 1948 to thwart the Dutch blockade (Reid 336 2005, Sulaiman 128, 2006).
Peace, Special Provincial Status, and Acehnese Identity

The character and outcome of the Darul Islam Rebellion would further solidify Aceh as a willing provincial member of the republic while simultaneously creating Aceh’s pivotal and perplexing situation that would torment the province’s status and identity as the country moved toward military authoritarianism.

Darul Islam was a rebellion that began in West Java in 1948, spread to Sulawesi in 1952, and eventually arrived in Aceh in 1953. Ostensibly, the rebellion was a reaction to the secular, non-Muslim republic the new nation was developing into, rather than a government based on Islamic law, which was what Darul Islam’s adherents claimed they fought to establish. The rebellion was led by a militant Javanese mystic named S.M. Kartosuwrjo (1905-1962) (Ricklefs 279, 2001). Kartosuwrjo’s supposedly Islamic state movement in West Java eventually grew difficult to distinguish as rebellion or banditry, terror and extortion. In 1950 a former leading republican commander during the revolution, by the name of Lieutenant-Colonel Kahar Muzakkar (1921-1965), joined approximately 20,000 troops in Sulawesi who refused to demobilize. When negotiations failed in 1951, Muzakkar led the troops to the mountains in rebellion against the central government. In 1952 he contacted Kartosuwrjo and declared that his rebellion was now part of the Darul Islam movement (Ricklefs 297, 2001).

In 1948 Acehnese leadership was held by PUSA’s Daud Beureu’eh and Hasan di Tiro. Beureu’eh and Tiro negotiated with the Jakarta based republican leadership of Premier
Hatta and Vice Premier Syafruddin Prawiranegara to establish Aceh as a single province and not part of North Sumatra to be effective 1 January 1950. By January 1951 the central government had merged Aceh (for a second time) into North Sumatra province. This decision meant that the Aceh military, civil servants and leadership would no longer retain their local positions of power nor would they receive government budget revenues as North Sumatra province already had its own distinct local leadership. The decision to combine Aceh into North Sumatra province also nullified their previous agreement with Hatta and Prawiranegara (Ricklefs 300 2001, Aspinal 152-153, 2006).

Dissatisfied by the central government’s administrative decisions in 1951 that failed to honor the agreements made in 1950, Beureu’eh announced in September 1953 that Aceh had joined the Darul Islam rebellion, and directed his military units to attack government offices and security posts. Most Acehnese however did not join the Darul Islam rebellion because the traditional ulama leadership had supported participation in the Indonesian republic and were opposed to Beureu’eh’s violent actions (Sulaiman 130, 2006). By 1957 a cease fire had been obtained and the central government in Jakarta returned Aceh to provincial status. Fifty percent of Beureu’eh’s men stood down while the other half joined former Captain Hasan Saleh who also eventually negotiated with Hatta and Prawiranegara again. An agreement was reached that provided amnesty to all the rebels, rehabilitation for military officers and police and a decree proclaiming Aceh as a Special Region with control of religious customs, tradition and education (these having been the main tenants espoused by Beureu’eh’s version of the Darul Islam rebellion) so long as
that control would not violate the law in regards to the provincial and national government relationship (Sulaiman 133, 2006). Thus the involvement of Aceh in the republican revolution and its confirmed status as a province as well as the negotiated settlement to the Darul Islam rebellion appeared to insure Aceh’s autonomy. For those who were interested in what the movement claimed to target, religion, tradition and customs, Aceh would be allowed to administer itself as a willing, integrated, member state of a united Indonesia (Miller 294, 2006).

As we have seen up until this point and as we shall see more in this chapter, Aceh has had a unique and up until the Suharto era, very different historical experience as compared to other provinces that were under Dutch colonial rule for a long time. As one might suspect, the Acehnese, while speaking a Malay language, derived much of their self perspective from their westward orientation. Politically, from the 16th to the 18th century when the sultanate sought assistance, it traditionally turned to Ottoman Turkey, the protector of Mecca. The territory’s legal doctrine, while broken up into four categories, had been based on a combination of Islamic religious law from Arabia and adat or common indigenous law. One often heard and still hears today that Aceh is the Serambi Mekkah or the Verandah of Mecca.

This term; Verandah of Mecca or Mecca’s Porch developed not only due to political, legal and commerce connections between Aceh and Arabia but from Aceh’s reputation as a location of Islamic scholarly exchange in both directions as well as Aceh’s position as
the port of embarkation for pilgrims to Mecca. In short, as Scott Riddell has explained, “The movement of people was mirrored by the movement of ideas between Arabia and the Indonesian archipelago.” And the conduit for that movement was mainly channeled through Aceh (Riddell 42-48 2006).

Important also, as Riddell noted in his essay on 16th and 17th century Aceh, “Violent assertiveness is an effective catalyst in identity formation.” Prominent to Acehnese self-perception then as well as in more recent times has been a history of violent conflict. From the sultanate’s expansion of Aceh’s sovereignty to internal civil wars to resistance of colonial advance, social revolution, as well as religious and autonomy rebellions to its modern independence movement, the Acehnese, if not trading, have been fighting. This fighting orientation, generally combined with ethnicity and occasionally accompanied by religious rhetoric was the dominate theme from the war against the Dutch, to the Darul Islam rebellion and GAM’s resistance to the Indonesian colonizer.

In discussing Acehnese identity formation through violence, Edward Aspinal quoted the famous Acehnese historian Nazaruddin Sjamsuddin, who argued (during the Darul Islam rebellion in Aceh) that a series of massacres of the Acehnese and the Indonesian government’s reluctance to investigate them increased Acehnese ethnic identity: “it drove them further towards a deeper parochialism that cemented their ethnic sentiments” (Aspinal 159, 2006). Ethnic identity and the massacres that spawned its resurgence again became a reality after GAM took up arms against the GOI.
While the Acehnese may claim a greater degree of Islamic devoutness than their fellow Indonesians, the leadership of Aceh is acutely aware of what their struggle was about and it did not include Islam or Sharia law. In discussing GAM’s ideology, Kristen Schulze points out that its main emphasis was on Acehnese culture and ethnic identity as contrasted with Indonesian nationalism (Schulze 242, 2006). In a long discussion with Muhammad Nur Dijuli regarding Islam and Sharia law, Dijuli stated, “We (GAM leadership) were screaming at them (the Indonesian parliament) in 2003 not to pass Sharia law for Aceh. We did not want this imposed on us by a secular Indonesian government. If we are to have Sharia law then we will develop it and implement it ourselves” (Dijuli, 2007).

**Sealed-off from the World 1990-2004**

Unlike the East Timor leadership, the leadership of the Free Aceh Movement / Gerakan Aceh Merdeka / (GAM) never obtained a large degree of international awareness for their struggle nor were they ever able to obtain even a modicum of international support. There are several reasons for this but the primary one was due to the imposition of martial law and presidential decrees. Under the declaration of Daerah Operasi Militer / Military Operations Area (DOM) the central government effectively sealed off the province from the outside world from 1990-1998 (ICG-Indonesia Briefing July 2003, Ricklefs 389, 2001). In contrast, martial law was lifted in East Timor in 1989 for outside investment and international scrutiny on Suharto’s orders. This provided global media with access to the conflict, which in turn supplied the exiled Timorese leadership with the ability to focus attention on their situation.
Exiled GAM leadership always thought that an internationalization of the conflict would be the only way they would be able to succeed politically, but a complete formula for achieving this was lacking until 1999. GAM had lobbied Australia, Europe, the United States and the Islamic world in the 1980s. Only Libya responded, providing military training in 1985. GAM had established public relations offices in Singapore and Malaysia but these offices received attention mainly from the Acehnese diaspora. In the 1990s Hasan di Tiro addressed a United Nations subcommittee and submitted a paper to the UN Human Rights Commission but mostly GAM’s efforts failed to garner attention or support (Schulze 237, 2006).

The fall of Suharto and the presidency of B.J. Habibie in 1998 changed the Indonesian political situation significantly. Habibie quickly announced an independence referendum for East Timor in 1999 which spurred public discussion about Aceh’s future and eventually led to negotiations that resulted in the Humanitarian Pause of 2000, the Moratorium on Violence in 2001 and the Cessation of Hostilities Agreement (CoHA) in 2002 that occurred in the subsequent presidential administrations of Abdurrahman Wahid and Megawati Sukarnoputri. Sadly and ironically, all three agreements led to increased levels of violence. Disappointingly, global media coverage and international awareness were also not generated. The dearth of media coverage was because martial law was generally maintained in Aceh and the Indonesian National Military / Tentara Nasional Indonesia (TNI) continued to conduct major military offensives despite the government’s engagement in peace negotiations (ICG-Indonesia Briefing March 2002, May 2003).
While the talks between the government of Indonesia (GOI) and GAM took place in Switzerland, there were never more than half-hearted temporary pauses in the fighting and not one foreign government supported Aceh’s right to independence. During the 2002 talks, the United Nations (UN) expressed its full support for the territorial integrity of the Republic of Indonesia (Schulz 238-241, 2006). With the exception of the attempts made by the Henri Dunant Center in Geneva to facilitate talks between GAM and the GOI, the highly restricted nature of travel to, from and within Aceh, made it difficult for the global media to access and report on the domestic situation which further curtailed any potential public sympathy for GAM’s movement. These conditions, combined with Aceh’s past support for the Indonesian Revolution, meant that most countries viewed and continued to view the modern era rebellion in Aceh as an internal matter best handled by Indonesia itself.

Revolving Presidents, Dual Track Policies & Vying for Influence of the TNI

Another condition that limited Aceh’s path toward independence, indeed toward an end to the conflict and the development of peace, was the varied policy approaches pursued by three of the last four presidents (Morfit 18, 2007). Indonesia’s first six years of democratization from 1998 to 2004 witnessed a rapid succession of individuals and cabinets occupying the executive branch. In the space of just five and a half years, Indonesia had four different presidential administrations.
Furthermore, it appears that the end of Suharto’s authoritarian regime destabilized the tight control of the country’s military forces by the new civilian government’s revolving executive branches. In each of the first three Reformasi presidencies, the executive branch appeared to have been in a difficult relationship with the military; at once attempting to distance itself from the military’s influence while at the same time vying for the military’s patronage rather than directly controlling it, forcing it to adhere to policy. (For more details on this subject see Mathew N. Davies *Indonesia’s War over Aceh: Last Stand on Mecca’s Porch* 2006 and Marcus Mietzner’s *Personal Triumph and Political Turmoil: Abdurrahman Wahid and Indonesia’s Struggle for Reform*, 2001).

In discussions conducted for this thesis, interviewees from the five groups were queried regarding the civilian government’s control of the military or the TNI’s willingness to adhere to government policy on Aceh. The GOI and TNI groups disagreed that the military was not under direct control of the civilian government or unwilling to follow policy on Aceh. The three other groups; the Conflict Resolution Specialists (CRS), the International Development Practitioners (IDP) and GAM either agreed outright with the above assessment regarding the lack of civilian government control over the military / unwillingness of the TNI to step-in-tune with government policy or thought that there was a high degree of validity to the idea. These three groups routinely cited massacres, rapes, killings and theft of herd animals by the TNI. Additionally, all three groups cited the International Organization for Migration (IOM) Psychological Needs Assessment report of 2006, covering Pidie, Bireuen and Aceh Utara, three well known conflict
districts, where survey teams found that 48%, 67%, and 68% respectively of surveyed males between the ages of 17-29 had suffered severe head trauma during the conflict (IOM 34-35, 2006).

**President Habibie May 1998 – September 1999**

The Suharto regime had spent thirty years militarizing the Indonesian government. It fell to President Habibie to begin the civilianizing of the country’s massive bureaucracy. Unfortunately Habibie’s efforts at civilianizing the government would be unable to match continued military activity in Aceh. Habibie’s policy on Aceh was to utilize economic development, support for the exercise of human rights and dialogue to convince the Acehnese to remain part of Indonesia. He promised that the government would build railways in Aceh, and he admitted that the government had made mistakes in Aceh that hurt the people and unfairly exploited Aceh’s natural resources. And in a political gesture Habibie declared amnesty for 39 GAM political prisoners (Jemadu 277, 2006).

Habibie’s handling of the East Timor challenge with a referendum for independence inspired and brought hope to the Acehnese and GAM that they too would soon have an opportunity to choose the fate of their region (Jemadu 277, 2006, Ricklefs 414, 2001). However, what the Acehnese could not realize was that the political elite as well as the TNI would never willingly relinquish Aceh as part of Indonesia. Jakarta and most of Indonesia viewed Aceh as a leader in the resistance to Dutch colonialism and a stalwart supporter of the revolution as well as the center of a long standing objection to the
authoritarian rule of Suharto. The leadership in Jakarta, no matter the political party, believed that if Aceh separated from the republic, the country would quickly begin to disintegrate (Ricklefs 411, 2001).

Habibie was successful in strengthening civil society in Aceh by introducing freedom of the press, allowing independent political parties, releasing GAM political prisoners and supporting the development of a new autonomy law for all of Indonesia. However, Habibie’s attempt to distance himself from the military while trying to obtain its support produced a seemingly dual track policy or what Alexsius Jemadu refers to as “Habibie’s ambivalence.” In August 1998 the TNI announced that combat troops would be withdrawn from Aceh in order to lighten the military presence, reduce the conflict atmosphere and decrease violence. The troops boarded transport ships and were then quietly redeployed in Aceh. The entire exercise had been a sham. And as a result violence escalated (Ricklefs 414, 2001).

Furthermore, the above actions had accompanied a public apology for what the TNI had done to the people of Aceh from General Wiranto. The fact that the TNI had concluded its Daerah Operasi Militer / Military Operations Zone or (DOM) and not the Habibie government indicated the military’s unwillingness or un-preparedness to subordinate itself to the civilian government. These actions were carried out by the TNI in response to intense societal criticism and a desire by the military to prevent an order from civilian leaders to return troops to their barracks (Jemadu 276, 2006).
Habibie was successful in stopping the military from declaring martial law in Aceh but the TNI still managed to massacre 57 students and a respected Islamic teacher in July 1999. The massacre was followed by rioting and demonstrations, all with a political separatist focus. By this time the conflict had worsened provincial wide suffering, having produced an estimated 240,000 internally displaced persons, which only served to increase popular anger at the TNI and sympathy for GAM (Jemadu 277 2006, Ricklefs 414 2001). While Habibie’s short presidential term accomplished reforms that put Indonesia on a path toward democracy consolidation, his Aceh policy lacked the conviction and resolution of his East Timor policy while maintaining the violence of the Suharto era in Aceh. In short, Habibie did not really have control of the situation in Aceh nor did he realize that his efforts and policies were continually sabotaged by the TNI’s continued reliance on the use of military force and violence to eliminate dissent and crush GAM rebel fighters (Jemdu 277, 2006).

President Wahid October 1999 – July 2001

If Habibie’s government fluctuated in its Aceh policy due to its courtship of the TNI while simultaneously attempting to distance itself from it, President Wahid’s administration suffered from an ambiguous Aceh policy that lacked coordination or direction. Wahid’s administration was also complicated by its competition with the military over how the Aceh challenge should be addressed (Morfit 18, 2007, Jemuda 278, 2006).
President Wahid was interested to pursue talks with GAM but understood that TNI’s position was derived from what it viewed as the loss of East Timor due precisely to the involvement of an international actor. The TNI felt that if GAM obtained any degree of international recognition, the country would begin to witness the break-up of Indonesia. This again indicated the difficulty the new administration would have in making the TNI subservient to civilian government (Jemuda 278-279, 2006). Therefore, Wahid elected to pursue dialogue with GAM while at the same time his government sought to obtain guarantees from the international community of states on Indonesian territorial integrity—meaning Aceh was an internal matter best solved by Indonesia (Mietzner 16-17, 2001).

Wahid’s dialogue with GAM employed the Henri Dunart Center (HDC) from Geneva, Switzerland. Together the three parties eventually obtained the “Joint Understanding on Humanitarian Pause for Aceh (HP) in May 2000, to take effect from June 2000. Wahid thought that GAM had agreed to relinquish its pursuit of Acehnese independence and in future negotiations focus exclusively on provincial autonomy. Shortly after the HP had been announced however, the GAM spokesperson had claimed to the media that the agreement was a first step toward international recognition of their independence movement (Jemuda 279 2006, Mietzner 20, 2001).

As a result of this miss communication and confusion, the GOI drafted special legislation (not in consultation with GAM) for Acehnese autonomy. This non-Acehnese stakeholder draft legislation languished in the Majelis Permusyawaratan Rakyat / People’s
Consultative Assembly or MPR until May 1, 2001 just two months before President Abdurrahman Wahid would be legislatively removed from office (Mietzner 20, 2001). This draft autonomy legislation would eventually be picked up by the Sukarnoputri administration and augmented to include a Jakarta derived Sharia law for Aceh. Nonetheless, the Indonesian government had seemed to make its first civilized steps toward addressing the Aceh problem that did not rely on a military solution. If nothing else came from the HP, it was thought that both sides would be able to restrain themselves enough in order for domestic aid organizations and the government to address the needs of the internally displaced population and remote areas suffering from the conflict.

The TNI was very displeased with Wahid’s decision to pursue dialogue with what they termed “the separatists” and for utilizing an outside third party to assist with talks, which they viewed as international recognition for GAM’s independence movement. While the negotiating teams had reached an agreement in Geneva, TNI and GAM had continued to escalate the fight on the ground in Aceh (Jemuda 270, 2006). TNI suspected, and many believe today, that GAM used the HP transition period to restock their ammunition supplies and redeploy their fighters. According to an International Crisis Group (ICG) briefing, the Humanitarian Pause reduced the violence among the general population for a short time but soon broke down as each side failed to meet their obligations and the joint monitoring team both sides had agreed on, lacked serious conflict investigation and judicatory skills and feared reprisals for reporting the truth (ICG 2, No 47, 2003).
Continued combat between TNI and GAM resulted in over 120 killed and large parts of the province fell under the control of GAM (Mietzner 20, 2001).

The humanitarian pause was scheduled to last from June 2000 until January 2001. However, the military’s unwillingness or inability to support the government’s efforts at transforming the conflict had doomed the HP from the start. ICG reported that some elements within the TNI had provoked the use of violence in order to reignite fighting and thwart the agreement (ICG No 18, Sep 2000). In truth the HP only served to deepen the mutual mistrust and hatred between the TNI and GAM as well as confirm the ongoing contest between the GOI and the TNI as how best to address the problem of Aceh (Jemuda 280, 2006).

From the end of 2000 and into early 2001 armed fire-fights and violence increased in Aceh. The HDC recalled both party’s negotiators to Geneva where a Provisional Understanding, addressing a vague political future for Aceh and Indonesia, was drafted. When it was introduced to government officials in Jakarta it was met with strong opposition. As a result the two sides agreed to a Moratorium on Violence from late March to early April 2001 but even this proved impossible to implement in the field in the aftermath of the failed HP (ICG 3, No 47 2003). By mid April 2001, under intense pressure from the TNI to approve a crack down on the separatists, Wahid had to issue Presidential Instruction No 4/2001; Operasi Keamanan dan Penegakan Hukum / Operation for the Restorations of Security and Upholding of Law (Jemuda 280, 2006).
While short of a formal declaration of martial law, the TNI was once again approved for full scale military operations just as they had been prior to the ascension of President Habibie. And once again it appeared that the military was reluctant, if not loath, to make a concerted effort to adhere to the policies of a civilian executive branch. As an ICG report summed up, “A weak civilian president had for all practical purposes lost control of Aceh policy to the armed forces” (ICG 3, No 47 2003). In the end, Wahid’s presidency was viewed as erratic and largely ineffectual.

**President Sukarnoputri July 2001 – September 2004**

Unlike Habibie and Wahid, President Megawati Sukarnoputri had no argument with the military, yet like Habibie she depended on the support of the TNI to shore up her administration’s standing, providing it with a type of legitimacy, that a civilian head of state in a newly democratizing country ought not to court (Jemuda 280, 2006).

The public fear that the republic would break apart should Aceh be permitted to go the path of East Timor encouraged Sukarnoputri to make it clear that the territorial integrity of Indonesia was her priority. This strong nationalist sentiment boded well for conservative non-reformist TNI generals who passionately wanted to keep the republic together and vehemently desired to crush the GAM separatists rather than negotiate with them. However, while Sukarnoputri observed that negotiations with GAM had achieved little, it does appear that Sukarnoputri was also conscious of the fact that the military solution alone had not achieved a resolution to the conflict either (ICG 4-6, No 47 2003).
Sukarnoputri then pursued a haphazard simultaneous three-railed track toward dealing with the Aceh challenge.

The special autonomy law for Aceh first drafted by the Wahid government was picked up, dusted off, approved by the Indonesian parliament in July 2001 and signed by Sukarnoputri on August 9, 2001 as Law No 18 for Nanggroe Aceh Darussalam (NAD). As the law makers had never consulted with the Acehnese on the content of the law, it wasn’t surprising that they were not enthusiastic about its passage. It failed to address human rights, natural resources tax revenues, and local political parties, which essentially side-stepped any involvement incentives for GAM. It placed enormous budgetary power in the hands of the governor but produced a horrible amount of confusion and legislative conflict by not superseding the two national decentralization laws previously passed in 1999 that devolved power to the district head level of Indonesian government. And lastly, Law No 18 NAD authorized the implementation of Islamic law despite loud protests from the leaders of the Free Aceh Movement, ulama and civil leaders. This portion of the law, concerning Islamic law or Sharia law, did not clarify how it would be regulated or enforced, how judges, lawyers, police or new Islamic courts would be established, recruited and trained nor did it explain how application and conflict of civil law would be resolved with Sharia law. This legislation would become the first rail of the Sukarnoputri administration’s misguided approach to the Aceh challenge (ICG 4, No 47 2003).
The military operations against GAM begun at the end of the Wahid administration in 2001 continued a pace under the Sukarnoputri government in 2002. Originally, Sukarnoputri’s national unity policy and the new special autonomy law, accompanied by military pressure, were to be all her government was going to offer Aceh (ICG 5, No 47 2003). However, General Susilo Bambang Yudhoyono, serving in his capacity as the Security Coordination Minister in the Sukarnoputri administration, pursued and obtained Sukarnoputri’s approval to quietly seek talks with senior GAM leadership (ICG 5, 7, No 47 2007). These continued dialogues between GAM and the GOI with the HDC and others assisting were to become Sukarnoputri’s second rail in addressing the Aceh challenge. These negotiations (with the usual TNI protests) eventually lead to the Cessation of Hostilities Agreement (CoHA) in December 2002. Without delving deeply into the details of why CoHA failed (see the ICG report entitled *A Fragile Peace 2003* the primary reasons were similar to the Humanitarian Pause of the Wahid administration.

First, CoHA, like HP, was not a peace settlement. It was an initial cease fire with a vague framework for discussing a peace settlement in the near future. Second, there were sticking points that had not been completely worked out for both sides such as whether GAM was giving up independence and accepting Law No 18 NAD, or agreeing to review and revise it but not necessarily give up on independence. What was meant by military troop relocation and reduction? This concept meant different things to the TNI than it did to GAM. GAM was to disarm incrementally during CoHA but they understood that this would happen concurrently with military demobilization. Yet there was no way to verify
either of these actions sufficiently. While it was agreed that the Indonesian police in Aceh would have to be transformed and retrained into a friendly civil law and order organization, no one knew how this would be or could be accomplished. Especially in light of the fact that the police had led so many offensive actions against GAM and were considered the most abusive organization by the civilian population in Aceh. Finally, GAM thought the negotiations were a tool for a revision of the autonomy law and an eventual referendum while the government insisted that the talks were never meant to facilitate a vote on secession (ICG 9-12 No 47, 2003).

Ultimately, GAM and the TNI understood the agreement differently and the longer they both failed to meet each other’s expectations, the greater mutual mistrust and hatred grew. For the TNI, GAM’s reluctance to disarm in an orderly fashion was the justification they required to once again press for the military solution to the Aceh problem. In line with the TNI’s dislike for third party peace actors, a series of demonstrations in Aceh against the HDC (some say organized or encouraged by the TNI) led to the April 2003 arson of the HDC office in Langsa, Aceh. This led to Presidential Decree No. 28/2003 on the Declaration of a State Emergency with the Status of Martial Law in Nanggroe Aceh Darussalam Province May 19, 2003 (Jemadu 283-284, 2006).

Sukarnoputri’s third rail in addressing the Aceh problem was to approve a stepped-up military presence in Aceh in February 2002. Six months after the passage of the special autonomy law and in the midst of the first round of new peace negotiations with GAM,
hosted by the HDC in Geneva and including the participation of negotiation specialists from the European Union, the United States, the United Kingdom and Thailand, Sukarnoputri approved the re-establishment of a TNI special regional military command in Aceh (Jemuda 281 2006, ICG 5-7 No 47 2003). This had been the first military reduction President Habibie had ordered in 1999 in an effort to reduce the TNI’s presence and the violence associated with the military in Aceh. The TNI had convinced Sukarnoputri that a special regional command would be important for security building in Aceh. In reality, this regional command structure would enable the TNI to pursue the conflict with greater efficiency. Furthermore, it has been argued by Damien Kingsbury and Lesley McCulloch, that this regional command was sought by the TNI for obtaining access to important Aceh development resources, such as timber extraction, just as the new autonomy law was implemented (Jemuda 281, 2006).

Under Sukarnoputri, GAM and Aceh were faced with a central government that had stumbled its way onto, rather than designed, a multi-rail policy that dramatically failed to address the Aceh challenge. Jakarta had passed poor, confusing legislation that would simply generate more problems in the Aceh-Jakarta relationship. Some say it was done out of a genuine desire to help, others suggest incompetence and some even identify malicious intent when Sharia law enters the discussion. And while conflict transformation was pursued by Sukarnoputri’s civil government, the TNI pursued the use of military force in the field when it wasn’t required.
Amazingly, for a third time, under a third civilian president, despite Jakarta’s attempts toward peaceful change, a military solution, pushed by the TNI had won the day. Martial law or some form of it was implemented, initiating another military offensive aimed at eliminating GAM. The consolidation of mutual distrust, suspicion and hatred could only insure a rigid repeat of the past.

Concluding Remarks

The Acehnese felt betrayed by Habibie. Wahid’s Aceh policy obtained dialogue between GAM and Jakarta but left both sides confused and distrustful. Sukarnoputri’s Aceh policy was similar to that of Wahid’s in that it had obtained an agreement that both sides misunderstood leading to breakdown and failure. The outcome of all three of these policies was to greatly increase the mutual distrust, suspicion and hatred on both sides. Under each of the above presidents, while peace was pursued, the TNI had remained engaged on the battlefield (Jemadu 273, 2006). The conditions for potential peace and self rule in a democratizing post Suharto era only decreased prior to the events 2004.

As Indonesia has democratized from 1998 through 2004 it seems fair to say, at least when discussing Aceh, that the military has not been under complete control of the executive branch of Indonesia. More accurately, it has become apparent that during this transitional phase from military authoritarianism to civilian democracy, the TNI has not performed in a top to bottom subservient role adhering to the civilian government’s direction. TNI actions at the territorial level in Aceh, under all three presidents, could be described as
acts of civilian policy sabotage. All three administrations, through their own initiatives and policies, attempted to pursue some type of reconciliatory process with a grass roots separatist military organization (GAM) that enjoyed the support of much of the provincial population, while a fragmented military structure pursued initiatives not generally in-line with the executive branch (Mietzner 19-20, 2001). Military action such as the massacre and false troop withdraw under Habibie, the inability of the military to support Wahid’s proactive initiatives, including bringing in a third party mediator, and the impatience of the military to reestablish martial law and renew a military offensive under Sukarnoputri while CoHA was being implemented all point to an unwillingness to follow executive branch policy or vision. In short, the independent continuation of battlefield activities, regardless of the civilian government’s diplomatic processes, resulted in greater mistrust, hatred, and suspicion which would make achieving any agreement more difficult (Jemadu 275-284).

This destabilized command structure from Jakarta to Aceh’s regional military command activities (in Aceh) helps explain why GAM continued to maintain a war posture. Simply stated, GAM could not determine who was in charge of the Indonesian Republic. In response to a question regarding the relationship between Jakarta and Aceh, Teungku Kamaruzzaman, a senior GAM leader and current Secretary the Bandan Rehabilitasi dan Rekonstruksi Aceh / Aceh Rehabilitation and Reconstruction Agency (BRR) responded, “Whenever we talk of Jakarta, we must ask who is Jakarta” (T. Kamaruzzaman, 2007)?
CHAPTER 2: PANARCHY
The Development of Panarchy Theory

To understand the explanatory framework of this thesis a moderate introduction to panarchy theory is first necessary. Panarchy theory, also known as Complex Adaptive System (CAS) theory or Resiliency theory will help uncover the source and role of change in Aceh’s quest for conflict transformation and the sustainability of peace. Moreover, exposure to conservation, environmental management systems, landscape ecology and sustainable development theories would prove helpful as panarchy was initially conceived by ecosystem scientists and has continued to receive its most arduous applicability testing in that discipline.

Panarchy theory originated with Dr. Buzz Holling, a zoologist from the University of Florida. It has continued to develop over the last twenty years. The theory began to take on integrative, multidisciplinary interest and testing when it received a five year grant from the MacArthur Foundation in 1997 for $1.5 million. At present, approximately fourteen university level institutions around the world, including six in North America and six in Europe have departments familiar with panarchy or faculty conducting research into its applicability in systems of economy, ecology, sociology, politics and institutions as well as system sustainability (Resiliency Alliance, 2008). Panarchy theory received its initial introduction in Ecosystems, Volume 4, 2001 by C.S Hollings and its formal introduction in Panarchy, Understanding Transformations in Human and Natural Systems by Lance H. Gunderson and C.S. Holling in 2002. At present, Dr. Holling’s
interactive reflections on complex adaptive systems theory can be read at the Resiliency Alliance web site, www.rs.resalliance.org.

**What is Panarchy?**

Panarchy is a conceptual framework to account for the dual, and seemingly contradictory, characteristics of all complex systems – stability and change. It is the study of how economic growth and human development depend on ecosystems and institutions, and how they interact. It is an integrative framework, bringing together ecological, economic and social models of change and stability, to account for the complex interactions among both these different areas, and different scale levels’ (The Sustainability Scale Project, 2003).

Panarchy is the term used to identify the theory of complex adaptive systems. These systems are made up of cycles nestled within interacting hierarchies of scale (see diagram page 62). The theory provides an almost all encompassing model for ecological, socio-economic, and institutional systems operating at scale. The complex adaptive system model explains how a system at one scale can interact or affect other related systems within the hierarchy. In other words, the theory recognizes how each system (also referred to in this text as a domain) functions at scale and is nested within a hierarchical system. Any hierarchical system contains domains of larger scale above and domains of smaller scale below any other specific system thus enabling vertical interactions between various scales. Panarchy further explains how a complex adaptive system (also referred to in this text as a healthy system) can create, reorganize, test and destroy itself, while potentially conserving itself or portions of itself, ensuring its continuance in the face of disturbance or radical change (Holling 390, 2001).
Development practitioners and academics have varying perspectives on sustainable development. Often they settle on a definition that bares little resemblance to the combined words in the phrase sustainable development such as; the improvement of the quality of life of human beings through the improvement of various industries or ecologies in which humans are involved. The United Nations defines sustainable development as “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” However, I contend that this is more a slogan rather than a definition of sustainable development. The term sustainable development is better articulated under the first of the UN’s primary goals; “Integration of the social, economic and environmental dimensions of sustainable development in policy-making at international, regional and national levels” (UN Department of Economic and Social Affairs, 2008).

My goal here is not to refute the thinking of the UN but to explain panarchy through the phrase sustainable development. C.S. Holling has provided this definition of sustainable development to enhance our understanding of complex adaptive systems theory:

Sustainability is the capacity to create, test, and maintain adaptive capability. Development is the process of creating, testing, and maintaining opportunity. Together, sustainable development thus refers to the goal of fostering adaptive capabilities and creating opportunities (Holling 390, 2001).
This definition of sustainable development provides those in the international development field with an insight into panarchy theory as it applies to efforts intended to generate sustainable industries or practices in the developing world.

An example of panarchy theory at work might be illustrated as a federal government policy aimed at assisting a mono cropping corn farmer in Thailand to transition to an integrated farming system. At the local scale someone would be required to work directly with the farmer(s), while at a federal scale, incentives might have to be designed to encourage farmers to take on the risk of change involved with adding other crops or taking on different livelihoods. At the provincial scale, a system that facilitates the transport and planting of discounted fruit and forest saplings may be needed, or training for bee keeping, poultry growing and fish farming.

There are other scales and inputs that have not been considered that would play a role in assisting or restricting the farmer(s) crossover from mono cropping to integrated farming. Rainfall or drought would obviously be a large scale system that humans can not generally influence. Soil quality can be influenced but it may be subject to larger, slower scale system dynamics than the farmer(s) or the state can regulate or alter. While these examples may have accounted for several system scales related to the farmer(s) transition to integrated farming, there are various additional inputs from the local district to the global scale that may exchange material that increases or decreases the farmer(s) ability to change. Some of these would include: domestic market prices for fruit, hardwood,
honey and chicken as well as subsidies on these goods being produced in competing international markets. Another input might be loan rates available to the farmer(s) in this particular region or even physical access to local markets related to transport infrastructure and its affects on the farmer’s abilities to get the products to market. A theory robust enough to consider these various systems, their differing scales and the exchange of material (influences, ideas and energy) between the various domains (systems) could prove extremely useful in local, regional, national and international planning, investing and transforming.

In Panarchy, each scaled system or domain must also take into consideration which phase it is in with regards to its cycle. Within these systems there are inputs affecting the cycle’s adjustments or adaptations. Each scaled system is relatively self-regulating. However, the behavior of any one system can affect the behavior of systems at scales higher or lower, larger or smaller than the system being studied. Furthermore, higher, larger scale systems cycle energy slower in relations to their position up the hierarchy. Conversely, lower, smaller scales cycle material faster in relation to their position down the hierarchy. Finally, the inputs cycling within each system can and will be natural (ecological), as well as human and institutional (socio-economic). The result is a very dynamic and complex exchange of information, energy, and material within singular scaled systems or vertically between different scaled systems. In spite of these variables, the theory maintains a robust simplicity that allows it to integrate academic disciplines to
identify major inputs or elements at play within systems and to understand how the varied interactions are related to promoting change or limiting change.

**Complex Adaptive Systems**

There are several other concepts and terms that must be clarified before panarchy theory can be applied to the Aceh-Indonesia conflict, its transformation and the possibility of a sustained peace. As previously explained, systems occur in *nested hierarchies* that, depending on whether they are larger or smaller in scale, cycle material faster or slower up or down the hierarchy.

The use of the term hierarchy in panarchy theory does not suggest senior or authoritative control. Instead it describes scaled levels of systems that operate semi-autonomously due to the interactions of variables at their own scale that share similar speeds. If the transfer of material (also in this text referred to as energy, information, ideas or capital) to the next higher scale is maintained, the interactions of material within a system’s own scale can be altered or changed without the entire system losing resiliency and collapsing. This affords the individual scales and indeed the whole hierarchical structure a wide range of tolerance for potential experimentation or manipulation.

As mentioned previously, these scaled adaptive cycles can both conserve or limit and create change within a system. However, panarchy theory recognizes that each scaled hierarchical system can be influenced by the smaller faster scales situated below or the
**Figure 5: A Complex Adaptive System Nested Hierarchy**

Below: Three complex adaptive systems nested in a hierarchy. Systems or domains above are larger and the cycle of material is slower while systems below are smaller and cycle material faster. Systems influence each other through the exchange of materials.
larger slower scales situated above due to exchanged material that can influence or produce change. These smaller-faster and larger-slower scales within the hierarchical system provide panarchy theory its all encompassing nature to be restrictive and promoting, creative and conserving, developing and destroying. In short, an interchanging cyclical systems model that adapts, learns, remembers and can be transformed from the loss of domain integrity or resiliency (Hollings 393, 2001).

While there are many possible points of connectedness between adjacent scaled levels there are two specific conditions to be aware of in regards to change and cross scale dynamics. The first is revolt. Revolt occurs when fast, small events overwhelm large, slow systems, for example, when a small fire in a forest spreads to the crowns of trees, then to an adjacent forest patch, and eventually the entire forest. The second is remember. Remember occurs when potential energy accumulated and stored in the larger, slow domains influences system reorganization in a smaller, lower system scale. For example, after a forest fire, the processes and resources accumulated at a larger system scale can slow the leakage of important nutrients, and thus options for renewal are drawn from a resource bank at a higher scale where physical structures and surrounding species form a biotic legacy from a larger to a smaller scale (The Sustainability Scale Project, 2003). See Panarchy Terms and Symbols on page 11 for more concept definitions.
Phases of a Complex Adaptive System

Adaptive cycles have no starting point, no linear progression, and like ecological and biological systems, there is no state of equilibrium. Yet there are phases within the system’s cycles where the properties of material (energy, information, ideas or capital) can be considered high or low, the degree of connectedness stronger or weaker, and the resilience, as it relates to adaptation (absorption, adjustment or re-flexibility) to outside disturbance, is measured in robustness and malleability or vulnerability and rigidness (Gunderson and Holling 28-29, 2002).

As shown on the next page, the symbols representing different phases of an adaptive system cycle are derived from the science of ecology and provide clear meanings to the characteristics of the cycle at each stage. (r) depicts the flow of material in the system’s exploitive growth phase. The exploitive phase of a system cycle is characterized as gradually slowing. As material gains in strength, the system becomes more connected (tighter) with other variables and the cycle’s amount of material (sometimes referred to as system wealth) attempts to conserve its situation as it approaches (K).

At the (K) stage a cycle’s connectedness and system wealth have reached their zeniths. A system’s resiliency however has become highly specialized to experienced, known or expected disturbances thus weakening the (K) phases overall resiliency to unanticipated internal or external disturbances. Due to this rigid structure the (K) phase thus becomes more vulnerable to outside shocks. Cyclical progression (also referred to in this text as
Figure 6: A Complex Adaptive System

(r) Growth or Exploitation          (K) Conservation
(Ω) Collapse or Release            (α) Reorganization

→ → →  Slower moving  Faster moving
flow) of materials, energy, ideas, information, or capital slows to a minimum in an effort to sustain the cycle’s maximum plateaus of efficiency (Gundersen & Holling, 34-35 2002). In social or economic institutions accumulated system wealth would be held in the skills, networks, human resources, and institutional integrity (Holling 394, 2001). In a tropical forest accumulated system wealth could be identified as; abundant damp forest floor debris, thick warm air humidity and rich nutrient soils, all of which serve to maintain system integrity and defend against disturbance. Most flora and fauna in a tropical forest require high levels of moisture to be sustainable. Without the disturbances generated by human systems, a tropical forest would essentially never incur a natural forest fire because most everything would be too wet to sustain a burn. Dry conditions at high temperatures are difficult to obtain and can not be sustained ensuring any natural fire’s extinguishment. Manmade conditions and fires have and continue to disturb the tropical forest’s naturally designed conservative (K) phase.

In a healthy complex adaptive system, material will eventually be turned toward (Ω), where the energy stored in the (K) phase will be released for it to experiment with new combinations and variations as it flows toward the (α) or reorganization phase. Examples provided by ecologists often cite large scale boreal forest fires that occur every 75-150 years. Political scientists point to regular democratic elections, political or social revolutions that bring about reorganization or force change as the (Ω) phase of human built systems.
Lastly, an adaptive complex system will direct capital flow from its experimental and reorganization \( (a) \) phase toward the exploitive \( (r) \) phase. The exploitive phase is where the system finds its “running legs,” so to speak. Here the new structures of the \( (a) \) phase begin to reap rewards which are then reinvested into the new structure to strengthen the system.

One aspect of the Asian Financial Crisis (1998-2001) provides an example of a human economic institutional system passing through all the phases of a complex adaptive system. There was a financial over-investment in property throughout Southeast Asia, especially in Thailand. This represented an over abundant fiscal element or input at \( (K) \) phase within the economic system. As the funds were released from these over-investments, creative destruction ensued, and the system moved toward the release \( (\Omega) \) phase. Investors then sought and found other opportunities (reorganization \( (a) \) phase) in more traditional markets such as food production, industrial manufacturing and natural resources. As the system restructured it eventually led to property and financial market stability (the beginning of the self-exploitive \( (r) \) phase), and a successful recovery of Thailand’s and Southeast Asia’s overall economic system.
**Figure 7: Complex Adaptive System Properties**

<table>
<thead>
<tr>
<th>(r) Exploitation / Growth</th>
<th>(K) Conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Ω) Release / Collapse</td>
<td>(α) Experimentation / Reorganization</td>
</tr>
<tr>
<td>(r) to (K) Slower moving</td>
<td>(Ω) to (α) Faster moving</td>
</tr>
<tr>
<td>(α) to (r) cycle transition slowing</td>
<td>(K) to (Ω) cycle transition quicking</td>
</tr>
</tbody>
</table>

Gunderson and Holling 41, 2002

Graphic obtained from The Ohio State University, Center for Resilience

http://www.resilience.osu.edu/EnterpriseResilience.html
Properties of a Complex Adaptive System

Adaptive systems contain three properties that provide for system flexibility and future responses, be they ecosystems, economic and political systems or institutions. The first property is the potential wealth of a system or **system wealth** available for possible change. System wealth will determine the range of possible options available to the system for use in future change. The second property is the degree of **connectedness** (connections) between internal controlling variables and processes which reflect the amount of flexibility or rigidity of system controls that react to various disturbance inputs. Connectedness can also be thought of as a cycle’s sensitivity to disturbance. The **resilience** of a system, sometimes referred to as system memory, measures the vulnerability to unexpected or unpredictable shocks (Gunderson and Holling, 32-33 2002). These three properties tend to determine the responses of ecosystems, economic and political systems or institutions to multi-varied disturbances or crisis. As summarized by C.S Holling,

Potential or wealth sets limits for what is possible- it determines the number of alternative options for the future. Connectedness, or controllability, determines the degree to which a system can control its own destiny, as distinct from being caught by the whims of external variability. Resilience, as achieved by adaptive capacity, determines how vulnerable the system is to unexpected disturbances and surprises that can exceed or break that control (Holling 394, 2001).

**Resiliency** is a measure of a system’s ability to deal with unexpected or unpredictable shocks. It is the opposite of vulnerability. **Connectedness** is the degree of controllability between internal connected variables and processes. It reflects the degree of flexibility or
conversely the degree of rigidity within a system. **System Wealth** is the inherent potential available for change. It sets the limits of what is possible and the kinds of options available (Sustainablescale.org, 2003).

**Maladaptive Systems**

Panarchy theory recognizes two distinct deviations from the complex adaptive system cycle. These systems are often described as “traps” because the cycles of the system demonstrate an inability to adapt and can eventually lead to the collapse of a nested hierarchical system. These two maladaptive systems are a poverty trap and a rigidity trap.

In a *poverty trap* the flow of material through phases becomes impoverished as the properties of resilience, connectedness, and wealth potential are continually depleted due to repeated disturbance, misuse, or a combination of both. Eventually the cycle no longer has enough of these key properties to maintain itself or cycle from \( r \) to \( K \) to \( \Omega \). Instead the system fluctuates between cycles of \( a \) to \( r \) until this flow can no longer be maintained causing the panarchy to collapse and propagate downward through smaller adjacent scales. Once a maladaptive system has collapsed, panarchy theory predicts that the system will “transition” or “flip” into a different complex adaptive cycle (Holling 71, 2001).
Holling and Gunderson site many ecological examples such as the productive African savanna in Kenya and other parts of Africa where humans have overexploited the environment resulting in sparse vegetative cover, and cyclical droughts that promote increased erosion and the continuance of sheep husbandry. Inspired by the connections and cross scale capital exchanges between systems led me to exam the combined factors of human migration, agriculture, fire use to clear vegetation, moisture depletion from smoke and the effects of El Nino in Indonesia, in a paper entitled *Resiliency Interrupted*. The paper concluded that the cross scale dynamics of human systems at play with the natural system of El Nino have resulted in a poverty trap for the lowland and midland tropical forests of Indonesia (Mason 1-18, 2006).

Holling and Gunderson also point to poverty traps in societies due to the disruption of conflict, the loss of cultural cohesion, and adaptive abilities where upon individuals can only rely on themselves and immediate family for survival (Holling and Gunderson 95-96, 2002). At a glance, this could suggest societal poverty traps existed in Cambodia under the Khmer Rouge, the maintained state failure in Somaliland, Afghanistan, the Gaza Strip, Western Sahara, the tiny states within South Africa under the former apartheid regimes, and East Timor where questions of political and economic viability still remain paramount.

Panarchy’s other maladaptive cycle is known as a *rigidity trap*. A rigidity trap is the opposite of a poverty trap. It’s a maladaptive state characterized by extremely high
system wealth, excesses connectedness, and high resiliency. The key properties of panarchy have become so entrenched that the system can not cycle through all four phases of a complex adaptive system nor utilize new inputs to release and reorganize. The system cycle is trapped between \((K)\) and \((\Omega)\). Material may often attempt to release through the \((\Omega)\) phase but due to the ingrained nature of the systems key properties, material or energy is drawn back into the conservative \((K)\) phase. In addition, new material inputs tend to be deflected from the \((K)\) phase voiding any influence toward potential change. In essence, change is disallowed.

What is surprising about both the poverty and rigidity traps is that they are remarkably sustainable, while at the same time maladaptive. A poverty trap can continue for long periods of time, such as the African savannah in Kenya or the lowland tropical forests in Indonesia. Yet, it is fairly clear that a cyclical state of ever increasing impoverishment will eventually give-out from exhaustion, re-emerging as a new and most probably complex adaptive system rather than a renewed poverty trap system.

Rigidity traps on the other hand are often described as having a wealth of material and a high degree of control (connectedness) over material within their system scale. Instead of a high potential for change, the rigidity trap has a high potential to maintain itself through the use of its system wealth and an excessive degree of connectedness that enable it to sustain its most self-exploitive elements. This situation has been described in
Figure 8: Poverty & Rigidity Traps

The model below assists in understanding the loss of critical phases in an adaptive system. It may also be helpful in conceptualizing a complex adaptive cycle as being stuck in-between two of the four adaptive phases thereby making it a maladaptive system.

Gundersen & Holling 95, 2002
Graphic obtained from http://www.ecologyandsociety.org/vol9/iss1/art3/figure3.jpg
panarchy theory as a perverse level of resilience (Holling 400, 2001). Rigidity of this nature enables a system to resist regular disturbance as well as new inputs crossing over from adjacent system scales. New material inputs are thought to be destroyed or ejected before they have a chance to connect, influence and alter cycle movement toward adaptability. Moreover, the perverse resistance of a rigidity trap is able to withstand an episodic movement through the creative destructive release (Ω) phase. Material fails to cycle through the experimental reorganizing (α) phase and instead snaps back or is directed back into the conserving (K) phase, time and time again. It is unclear at this point in panarchy theory if it is the ingrained nature of the key properties within the (K) phase promoting this sustainable maladaptive state or if a particular trigger exists that when reached, forces the released material or energy back towards (K) phase.

In a socio-economic or political context, the rigidity trap’s potential is measured in accumulated wealth. Its high level of connectedness is exercised through methods of social-economic control and its resiliency is measured against efforts (disturbance) aimed at change. Large bureaucracies, industries, and institutions have often been pointed to as examples of rigidity traps.

For instance, the U.S. automotive and oil industries, together, are examples of an industrial rigidity trap. These two industries abandoned electric car production and successfully lobbied the US government to lower miles per gallon standards in the 1990s. (For more on this subject view *Who Killed the Electric Car*, by Chirs Paine, 2006). An
analysis of the Hindu Caste System by Fikret Berkes and Carl Folke has revealed that while this social system was once useful and productive, the modernization of society and the decline of the overall environmental resource base has made the system maladaptive. Yet the caste system continues to persist despite laws against it and education provided to inform the society of its harmful affects (Gunderson and Holling 97, 2002).

Concluding Remarks
This chapter has provided a basic understanding of panarchy theory which has been used to explain hundreds of ecological, socio-economic, and political systems that have either persisted through cycles of sustainable change or have been maladaptive and collapsed. The totalitarian bureaucracy of the former Soviet Union has been depicted as an example of a rigid maladaptive political regime (Levin 1998). The Vietnamese victory over the U.S. in the Vietnam War has been explained through the use of the three key panarchy properties (system wealth, connectedness and resiliency) within scaled complex adaptive systems that Ho Chi Minh and General Giap were able to manipulate in the fight against a largely superior militarized force (Nitzschke 1997). The Dayak social movement in Indonesia has been shown, through the use of panarchy, to be combating deforestation through the restoration of linkages between Dayak socio-ecological practices that have returned ecological resilience in portions of lowland forest in Kalimantan (Alcorn 2003).
It is from these wide and varied uses of panarchy theory that this thesis will attempt to conceptualize the conflict between Aceh and Indonesia set within a nested hierarchy of complex adaptive cycles. During an interview, while conducting research for this thesis in Aceh in April 2007, Kevin Evans, a long time democratic governance specialist and Indonesian expert, was intrigued by panarchy theory and recognized immediately how the adaptive phases as well as the maladaptive rigidity trap related to the Aceh-Indonesia conflict. In Mr. Evans words, “The tsunami was a regime changing event. An ecological event that fundamentally altered the system of conflict that had existed by changing the thinking of the people involved in the conflict.” Chapter 3 will first depict the rigidity of the Aceh-Indonesia conflict, properties that sustained it, including an identifiable trigger that repeatedly snapped the conflict back into the (K) phase. Chapter 4 will use panarchy theory to conceptualize the scales, inputs and exchange of materials that caused the Aceh-Indonesia rigidity trap to collapse, and generate into a complex adaptive system. Chapter 5 will examine eight categories of the current Aceh-Indonesia adaptive cycle that will enable the theory to identify which phase the system is cycling through, the systems challenges, where the system may be headed and if the current peace in Aceh is sustainable.
CHAPTER 3: ACEH'S RIGIDITY TRAP
The Aceh-Indonesia Conflict as a Rigidity Trap

In *Roots of the Acehnese Rebellion*, Tim Kell, sourcing the work of Nazaruddin Sjamsuddin, a prominent Aceh-Indonesian historian, explained that the special status negotiated between Indonesia and Aceh during the Sukarno era ‘diminished to a minimum level the flow of alien socio-political values from outside Aceh, leaving the Achenese nearly untouched by political games played at the national level for a period of time’ (Kell 10-12, 1995). Conceptually, we can see that the socio-economic and political system in place between Jakarta (Indonesia) and Aceh since the beginning of the war for independence in 1944 can be viewed as a complex adaptive system utilizing system wealth, exercising connectedness and demonstrating resilience. This includes a cooperative relationship with Jakarta, negotiations on special status, rebellion when provincial status was subsumed under the province of Aceh Utara, and negotiations for a second time that included the properties of autonomy. This political relationship between Sukarno’s government and Aceh actually demonstrated successive cycles through the four phases of a healthy complex adaptive system: (α) reorganization of the state as it emerged from WWII and revolution with the Dutch, (r) exploitation or improving practices as the new republic became organized, (K) conservation or consolidation of the republic, satisfying stakeholders and putting down various rebellions, some related in name only but not of purpose (three different manifestations of the Darul Islam rebellion), including Aceh’s initial provincial status and (Ω) release represented by Aceh’s rebellion from 1953-1957. Aceh and Indonesia cycled through their complex adaptive system again when negotiations (α) brought a peaceful settlement to Aceh’s
Darul Islam rebellion. This included the exploitive (r) phase results of Aceh provincial status and the provision of the already detailed special status (Daerah Istimewa 1959) for Aceh, which should have or at least for a time, placed Aceh within the conservative (K) phase of its relationship with Indonesia.

Kevin Evans, the Indonesian governance expert said “I think the maladaptive process of rigidity has been in application for about 50 years in Aceh as the country drifted from its early democratic traditions to authoritarian rule. The system transitioned from political negotiation (between Jakarta and Aceh) to the application of military force from the end of the late 1960s until at least the end of the 1990s” (K. Evans, 2007). This change from an adaptive to a maladaptive rigidity relationship between Jakarta and Aceh that Evans referred to dates from the end of the Sukarno era or the Old Order and the beginning of the New Order under the authoritative military rule of General Suharto in 1965.

Kell explained that the major political changes in 1965 that began the Suharto era (1966-1998) ushered in a government dominated by the military and an extreme centralization of political power and control that would not allow Islam or regional cultures to influence society or politics. The Suharto military regime had no intention of implementing or tolerating Aceh’s regional autonomy through the leadership of popular ulama. Nor was the Suharto regime inclined to engage the influential PUSA movement that had previously negotiated with the Sukarno government. In 1971 natural gas reserves were discovered in Aceh. Control and administration by local elites, having already been co-
opted by the central government, further deepened in favor of Jakarta as a result of the riches that could be gained from the facilitation and management of natural gas extraction (Kell 13, 1995).

At this stage in Aceh, Suharto’s authoritarian government performed exactly as panarchy theory explains a system transitioning from the exploitive (r) phase to the conserving (K) phase should, in that it acts to its greatest possible advantage; asserting greater control over Aceh through cooption of local leadership, insuring sustainable properties such as tax royalties from natural gas extraction and enforcing restrictions on Acehnese autonomy through authoritarian rule and military muscle. Understanding that the (K) phase of any system (adaptive or rigid) attempts to conserve itself by limiting change and sustaining itself through panarchy properties highlights the ever tightening control Suharto’s government employed through authoritarian system wealth, political elite connectedness, and the resilience of the military regime. And, while in the conservative (K) phase Suharto’s government buttressed itself against any potential new socio-political inputs such as the ulama and PUSA that might propel the Aceh-Jakarta system toward release (Ω) and renewal (a).

The first incarnation of Gerakan Aceh Merdeka / the Free Aceh Movement (GAM) occurred in 1976. It has been identified by many Aceh-Indonesia conflict experts as primarily a reaction to Indonesia’s exploitation of Aceh’s natural resource wealth without returning development benefits to Aceh. Development benefits such as increased
employment, public works projects, and tax revenues to the provincial budget that should have (GAM would argue) been used for improved education, health and transport (Barron and Clark 4-6, 2006). In any case, the Suharto regime immediately dispatched troops to Aceh and within one to two months had conceivably put an end to Hassan di Tiro’s minimally supported independence movement. My historical review has not returned any mention of the Suharto government seeking a dialogue with di Tiro or GAM to learn how the government could placate the fledgling movement or even as to ascertain why it had occurred. It was simply enough to exterminate it.

Panarchy could interpret this rebellion as either A) an input that was absorbed by the New Order political system at its zenith of the conservative (K) phase or as B) a rigid system’s deflection of an input, followed by a maladaptive cycle through a creative destruction / release (Ω) phase that failed to process through the (α) and (r) before it returned quickly to its conservative (K) state. I argue that it was a rigid system’s first passage through the release (Ω) phase and a swift maladapted return to the conservative phase as the political system did not incorporate the GAM rebellion of 1976 as a possible experimental passage in the (α) phase toward the exploitive (r) phase. Instead, the system responded to the movement by attempting to smoother it, which it very nearly achieved (Aspinal 2, 2005). From 1976 until 1982 Jakarta conducted military and police operations against GAM in Aceh. GAM members were arrested, tried, imprisoned, killed or forced to flee the country (MacDougall 1-13, 1994).
Suharto’s New Order system was unable to accommodate the roots of that first GAM rebellion as the Old Order of the Sukarno system had done with Aceh’s ulama and PUSA leadership and later with Daud Beureu’eh’s version of the Darul Islam rebellion. Instead, the rigidity of the New Order consistently strengthened its resiliency while it exercised system wealth and connectedness to sustain the New Order. Rather than utilize these essential properties to adapt and guide change, the systems properties were used to halt change. As the early eighties witnessed the successful clampdown on the movement’s initial activities and GAM became seemingly dormant, Jakarta furthered its co-option strategy. The Suharto regime now employed ulamas, having them tour the Aceh countryside with national army units. Together they explained to villagers that it was forbidden to join the independence movement, forbidden to aid fighters and that it was permissible for villagers to kill supporters of the Free Aceh Movement (Vickers 175, 2005 and Taylor 366, 2003).

**Gerakan Aceh Merdeka Reconstituted**

In 1989 the Free Aceh Movement (GAM) reemerged on the provincial landscape and established four regional military commands across the province. GAM had graduated 250 ground leaders from military training in Libya. The movement opened a public relations office in Singapore, an operational command in Malaysia, and an exiled government in Sweden (Taylor 366, 2003). While the GAM leadership was abroad, the Acehnese populous had become fed up with Jakarta-designed development that promised much but delivered very little. Common farmers and lay people encountered changes
they found unacceptable in a province known as the Veranda of Mecca, such as gambling, prostitution, alcohol use, drug use and gang-like thugs who worked for the military against local populations. The Acehnese also contented that Jakarta was becoming wealthy while Aceh continued to decline socially and economically because natural gas royalties filled Jakarta’s coffers but left Aceh poorer every year (Rickleafs 365, 2001). This continued increase in Acehnese poverty, despite being a resource rich province, has been cited as one of the main grievances GAM voiced in its initial rebellion in 1976. Suharto’s government viewed Aceh’s resources and industrial zones as agents of national development. Rather than uplifting the Acehnese population with employment and public works projects, the Suharto government employed Javanese in the Aceh industrial zones and used the tax royalties to develop Jakarta as well as to support corrupt politicians and military men (Taylor 365, 2003). This flow of financial benefits derived from Aceh combined with the long term violent conflict, fundamentally altered Aceh’s socio-economic structure within Indonesia. Aceh changed from a rural agricultural province with one of the lowest poverty rates in the 1970’s to one of the poorest provinces in the country. By 1998 54% of the population was living below the poverty line and 1.2 million people lived in unsuitable housing (Aspinal 6, 2005).

In 1989 GAM went on their first serious offensive since 1976. The (Ω) phase of the rigidity trap had begun anew as GAM forces attacked Indonesian military barracks and police outposts (Taylor 366, 2003). Suharto’s New Order demonstrated its maladaptive rigidity state with an intensely more violent response that halted a transverse in the
system from the release phase ($\Omega$) to the experimentation ($\alpha$) and exploitive ($r$) phases. Initially, like democratically elected presidents in the future, Suharto argued that the attacks were being carried out by criminal gangs. Yet the government responded not with police but in a military fashion. By June of 1990 military forces on the ground in Aceh had increased from 6,000 to 12,000 troops including two battalions of Komando Pasukan Khusus (KOPASSUS) or Army Special Forces Command (MacDougall 1-13, 1994). As troop numbers swelled, so also did arrests, imprisonments without trial, killings, body dumps in public places, burning houses, rapes, mass graves, refugees and orphans. As the separatist revolt gained strength from an oppressed and sympathetic population, Jakarta’s resolve to crush the separatist rebellion simply deepened, and by 1992 a full-scale revolt was underway. Military leaders, such as Armed Forces Commander General Try Sutrisno and Regional Military Commander Major General H.R. Pramono, were ordered to wipe-out the security disruptors by the end of 1990 and were free to use any means necessary as directed by President Suharto (MacDougall 1-13 1994, Vickers 135 2005, Taylor 366, 2003). The Aceh-Indonesia system scale (relationship) had become fully enveloped in a rigidity trap cycling back and forth from ($K$) through ($\Omega$) and back to ($K$). Unable to break free, adapt, adjust and overcome the authoritarian response to system disturbance, the military approach was deemed the only solution for governing Aceh province and for ejecting GAM.

Jakarta never once exhibited flexibility through negotiations, dialogue or something other than a military approach, all of which could have ostensibly led to a peaceful settlement of the conflict. Suharto’s regime viewed GAM’s activities as a threat to the New Order
system and believed that the movement needed to be crushed rather than politically
engaged. Possibly, had the rebellion been engaged in a dialogue, the movement’s energy
could have been used to propel a return to a complex adaptive system between Aceh and
Jakarta. All four phases, employing system wealth, connectedness and resiliency could
have absorbed and utilized GAM’s different ideas, information, and social capital. In
short, the relationship could have been similar to the partnership enjoyed between
Sukarno’s government and the leaders of Aceh rather than a system that relied simply on
armed combatants.

By mid-1990 Aceh had been declared a Military Operations Area, which was the
Indonesian equivalent of martial law. This mode of operation allowed the army to act
with impunity. It proactively employed house-to-house searches, curfews, checkpoints
and arbitrary detentions. Torture and summary execution were also practiced (Drakeley
135, 2005). These measures quieted down the insurgency as much of the population
lived in fear of the military, the police and civil military groups (pro-government militia).
As the battles and bombings declined and Indonesia’s control over Aceh was
reestablished, the New Order, for a second time, had avoided the healthy adaptive phases.
Through this two phase cyclical flow, the Suharto government deepened inflexibility,
trapping the province-republic relationship in the status quo of a maladaptive system.
System wealth, connectedness and resiliency had perversely stopped change once again
and by early 1993, Jakarta claimed victory over the insurgents (MacDougall 1-13, 1994).
Suharto’s regime would be required to maintain martial law or something close to it in Aceh from this time forward to sustain the maladaptive system of the New Order. However, while the New Order was once again preserved in the (K) phase, the abuse suffered by the Acehnese population served to broaden popular support and sympathy for GAM. This eventually increased GAM’s recruitment capability. From the mid 1990s to the end of the Suharto regime, refugees and orphans made homeless from the war were increasingly housed and educated in the mosques. During this period Jakarta effectively lost the support of the majority of ulama as they began to support the movement for independence (Vickers 135, 2005 and Taylor 366, 2003).

Astonishingly, just as a rigidity trap has been detailed to behave, Jakarta chose to employ martial law and abuse Acehnese citizens for nearly a decade to conserve and sustain an inflexible system. In essence, the authoritarian system’s properties of rigidity sustained an unchanging cycle of rebellion, through its use of violence and force. This inability to adjust or adapt ensured that while the system would be forced by GAM to pass through a release (Ω) phase, recognized as their rebellion, it guaranteed a return to the (K) phase, recognized as the Suharto government remaining in power and control of Aceh. The New Order’s strangle hold on the political relationship between Aceh and Jakarta was supremely resistant to change.

The system was too resilient, too connected and too wealthy to exit from a forced (Ω) phase into a productive (α) phase of experimentation and (r) phase of increased
efficiency. Not once in 22 years, two violent and bloody cycles through the ($\Omega$) phase had the Suharto regime thought to open up a dialogue with GAM, despite knowledge of the GAM operations offices in Malaysia and the exiled leadership in Sweden.

**Political System Destabilization**

In 1997 the Asian Financial Crisis swept through Southeast Asia. Due to the resulting economic and social upheaval, in May 1998, Suharto was forced to resign the presidency he held for nearly thirty years. This enormous political change or input into the system meant the Indonesian state, at various levels of scale, began to cycle through a productive complex adaptive cycle. As described in Chapter 1, the fall of Suharto ushered in a period of revolving executive government. This frequent change in executive leadership would in the future benefit the political Aceh-Jakarta relationship. However, the executive branch’s inability to completely control or influence the military forces of Indonesia or the TNI’s inability or reluctance to adhere to the dictates of early civilian governments meant that the panarchy’s key properties would remain in play sufficiently to sustain the maladaptive rigidity trap of the Aceh-Indonesia conflict.

In 1998 Vice President Habibie took over as president and immediately politics began to change in Indonesia. Very quickly President Habibie began to dismantle Suharto’s authoritarian New Order as well as lead the country on a path to improved economic, social and political health. In Aceh, Habibie ended the TNI’s DOM by closing its special operations office and recalling non-organic troops. He afforded a free press which
strengthened civil society and allowed for protests. Indigenous NGOs recorded human rights abuses, political prisoners were set free, independent political parties were allowed and Habibie supported the development of a new law for governing Aceh. However, the TNI continued to operate in Aceh, much as they had before the fall of Suharto.

In 2000, Abdurrahman Wahid was elected by parliament as Indonesia’s fourth president. His government achieved the Humanitarian Pause of 2000, its extension as the Moratorium on Violence in 2001, and drafted legislation on a new law for governing Aceh. However, his policy lacked coordination, and the TNI, especially at the territorial level, continued active oppressive security operations as they had under Habibie.

Finally, Megawati Sukarnoputri’s presidency completed the Special Autonomy Law for Aceh but did so without stakeholder involvement which resulted in a legislatively confusing law that included an attached approval for implementation of Islamic Sharia law that the GAM movement never desired, as they had expressed clearly to Jakarta lawmakers. Her government obtained the Cessation of Hostilities Agreement (CoHA) in 2002. However, CoHA was not comprehensive, lacked verification procedures and when GAM and the TNI witnessed action or inaction of their agreed implementing partner, both became increasingly suspicious until the CoHA simply ended in more fighting. Similar to the Wahid peace dialogues just one year earlier, TNI maintained or increased its security operations in Aceh, which in turn ensured GAM’s military posture. Meanwhile, Sukarnoputri’s government approved the TNI’s goal of reestablishing its
special military command in Aceh. Ultimately this short sighted multi-railed policy approach left the government, the TNI and GAM confused and more distrustful.

It could be argued that each of these three presidential administration’s attempts at cease fire agreements (none of them were comprehensive peace negotiations) represented separate rigidity trap cycles from (K) through (Ω) and back to (K) without a transverse through the reorganization (α) phase and the advantageous (r) phase because in each instance the agreements failed and the military approach was again pursued. Instead, I argue that the entire period from Habibie in 1998 through the failure of Sukarnoputri’s CoHA (May 2003) simply represents one cycle through the rigidity trap that witnessed, as panarchy theory allows, some initial period of the experimentation (α) phase before the overly connected properties of the rigidity trap blocked those initial experiments toward change and guided the movement / flow of system material back toward the conservation (K) phase.

Despite the new developments in policy and attempted discussions that were to change the Aceh-Jakarta relationship by presidents Habibie, Wahid and Sukarnoputri, the resiliency of the former authoritarian regime’s responses continued to be exercised by the military forces of Indonesia, especially the TNI. The TNI was intensely focused on maintaining the territorial integrity of the Indonesian state and were potentially encouraged by the benefits a continued conflict afforded them and their supporters. For example, following the failed HP and MoV, by April 2000 Wahid had provided the TNI
with what they had been pressing for the entire time his team was in negotiations with GAM- permission to ramp up military operations. When CoHA was being negotiated the military had continued to declare that GAM could not be trusted and by May of 2003, the government of Sukarnoputri endorsed a return to the military solution by declaring Aceh a military emergency that required the elimination of GAM.

**Concluding Remarks**

As one conducts a historical review of Aceh during not only the Suharto era but also the revolving presidential period immediately following it, the militarization of civil, electoral, and common bureaucratic aspects of government is astounding in its depth and scope and its conceptualization of political rigidity. Military historian and former Australian intelligence officer Matthew N. Davies has provided an extremely thorough account of the TNI’s all encompassing governmental embrace during the reformasi period in *Indonesia’s War over Aceh, Last Stand on Mecca’s Porch*;

Under the protective and coercive military umbrella, the centralist regime’s main civil bureaucracy, the Interior Ministry, offered civilian participation. Jakarta’s regime claimed representative legitimacy in Aceh by financially enticing, and creating, local elites at every Interior Ministry government level in the province, i.e. regency, district, sub-district and village (Davies, 44, 2006) and
In microcosms of the Security Coordination Ministry’s co-opting of civil agencies at national level, the TNI-POLORI territorial hierarchy regularly participated in the similarly centralized civil government via regional consultative leadership councils, articulated to their more obviously military-influenced executive form in leadership triumvirates. Consultation was actually security forces coordination of support from civilian agencies that were military subordinates for most practical purposes (Davies 56-57, 2006).

The ensconced nature of the TNI in both Aceh and in Jakarta supplies not only the conceptualization of the rigidity trap but also provides the trigger mechanism of the maladaptive system. Each time dialogues were pursued or engaged by those in the executive branch during the revolving presidential period, even as the rigidity trap appeared to enter experimentation ($\alpha$) phase, the entrenched nature of the military apparatus directed all energies back to the status quo.

I would further argue that the revolving presidential period of reformasi was a transitional period where the civilian government was struggling with its authority over the TNI and conversely, the TNI, as depicted by Aleksius Jemada and others, was not yet ready or was unwilling to submit to civilian authority (Jemada 276, 2006). Whether it was a lack of civilian government control or influence over the TNI or the Indonesian military’s unwillingness to let the executive branch lead policy and process without undue pressure to re-implement the military solution, recognition of this element would explain difficulties the executive branch had in turning cease fire negotiations and agreements with GAM into field successes in Aceh.
Additionally, understanding the civilian governments struggle to command the TNI as well as the TNI’s utility as the rigidity systems trigger to stop change supports how gaining command, control or influence over the TNI, in a sense, making it a willing partner of the government, explains how the rigidity trap could collapse in Chapter 4 and the development of peace in Chapter 5.
CHAPTER 4: THE COLLAPSE OF THE ACEH-INDONESIA RIGIDITY TRAP
We have reviewed how the relationship of the central and provincial government transitioned from a healthy complex adaptive system during the Sukarno era to a maladaptive system of rigid cyclical conflict between Aceh and Jakarta in the Suharto era. We have also witnessed how this rigidity trap, through a perversely resilient military trigger, continued to function within a governmental system undergoing fundamental change at the national level. Despite a locally supported independence movement in Aceh, and the changes that occurred at the national level with the fall of Suharto, the military solution to the Aceh-Indonesia conflict continued to be selected. At this stage of the analysis panarchy presents the researcher with a challenge: How does a cycle break out of a rigidity trap?

I argue that the Aceh-Indonesia rigidity trap collapsed due to the change of two key elements identified by panarchy theory. First, material that had been generated within the military itself was able, through the mechanism of a democratic election, to produce a panarchy revolt within the central government system. Second, a stochastic event from a natural system produced several key opportunities for change that would support the development of a new complex adaptive system and generated a change within the mindset of GAM. In essence and as often alluded to in the discussion of poverty and rigidity traps, the system held the seeds of its own destruction (Gunderson and Holling 75 and 98, 2002). The seeds simply required a means to germinate and affect change.
The Revolutionary General

Prior to the election of retired General Susilo Bambang Yudhoyono (SBY) as Indonesia’s sixth president in late 2004, (the fourth president since 1998) SBY had served as President Wahid’s (1999) and Sukarnoputri’s (2001) Coordinating Minister for Security and Political Affairs (Morfit 14, 2007). SBY had overseen all operations in Aceh, both militarily and dialogues with GAM in Europe directed toward peace (ICG 2 No 47 2003, Schulze 259 2007, Davies 56, 2006). While his role in negotiations with GAM representatives post tsunami does not compare to Jusuf Kalla’s, his role as one of the first, if not the first, to change his thinking on a military solution to the Aceh-Indonesia rigidity trap is not in dispute. It appears that early on, at some point during the continued offensives in Aceh, SBY recognized the futility of Indonesia’s reliance on military operations against an opponent (GAM) whose chief strength laid in their ability to break from armed combat, for years if necessary, and reconstitute later. And of greater significance, SBY recognized the rigidity of the system he was a part of.

SBY believed that the most important opposition to his whole approach came from some very senior elements of the TNI, and from vocal nationalist politicians in the DPR (national parliament). In his view, both groups were ‘very rigid’; unwilling to compromise and highly suspicious of or even opposed to any negotiations with GAM. SBY and Kalla also knew that these groups both had wide reaching and powerful networks in the military, civil service, political parties and private sector, and both groups had the capacity to undermine, erode or sabotage any agreements that they did not support (Morfit 11, 2007).
Discussing SBY’s initial steps toward altering the solution choices to the Aceh-Indonesia conflict and thereby injecting change into the rigidity trap with the Minister of Defense Indonesia, Juwono Sudarsono said, “I think it goes back to his period as Chief of Security Minister (Coordinating Minister for Security and Political Affairs) in December 2002 when he and the foreign minister initiated this essentially political solution. That we could not win the war militarily and that Aceh was essentially a political and cultural problem with specific historical circumstances” (J. Sudarsono 2007).

Sudarsono went on to explain just how far back SBY had sought fundamental change. For instance “In 1997 SBY had been the leading formulator of the new paradigm of the army, in which he expressed his belief that in the future Indonesia can only be governed through a robust civilian authority after 30 years of military dominated governance” (J. Sudarsono 2007). Teuku Kamaruzzaman of the Bandan Rehabilitasi dan Rekonstruksi Aceh / Aceh Rehabilitation and Reconstruction Agency (BRR) and former GAM negotiator said, “SBY was already thinking about peace talks, long before the tsunami (T. Kamaruzzaman 2007). At the time of research, Minister for Communications and Information Technology, Dr. Sofyan Djalil explained that,

During the presidential campaign of 2004, SBY had already chosen his team to solve the Aceh problem as part of his political platform. He clearly made a campaign promise that if elected, he would solve the Aceh problem with peace and dignity to all. While this was not a dominate theme of the campaign, nor was it frequently cited, SBY had submitted this point to the national election committee and in three fully open presidential debates, the issue was raised by the debate panel. We also promoted his platform during the campaign (S. Djalil, 2007).
Having dealt with the GAM negotiators previously and knowing their dislike of the Javanese, SBY and Kalla insightfully designed the GOI negotiating team to be made up of members from various regions throughout the archipelago but did not include a single Javanese member (S. Djalil, 2007). And finally, Minister Sudarsono had summed up this topic by stating, “SBY, being a former general and becoming president was very important because only he could persuade the opposing officers that this essentially political solution was the only correct thing to do to resolve the issue” (J. Sudarsono, 2007).

In regards to SBY’s ability to influence the willingness or readiness of the TNI to adhere to executive branch policy and to not pressure the GOI to pursue the military solution (or in panarchy theory, control of the rigidity trigger) 75% of those interviewed on this topic, including Michael Bäk, the Acting Director of the USAID Conflict Prevention and Response Team at the US Embassy in Jakarta, agreed that it was important for a former military man to be elected president in order to gain control of and influence over the military. Colonel Ponto of the TNI, who also served on the Aceh Monitoring Mission (AMM) in Banda representing the TNI explained,

Yes, of course it was important that a former military man was elected president because he is one of our own. Not only do we have an obligation to him because he is president but also in terms of a personal relationship, as military men, everyone in the TNI thinks, okay, this guy is my senior. It enforces control very much and those military personalities that previously influenced the government- the influence is now on the soldiers from the president. Not all the generals like SBY, however, now they look and see that the president is military, it makes a difference. But if he were only a civilian president, maybe well, it would not be the same (Col. Ponto, 2007).
Some of those in the current SBY administration, who were part of the Helsinki negotiating team and the Aceh Monitoring Mission (AMM), such as Dr. Sofyan Djalil and Zainal Arifin, did not agree with the idea that the TNI was not under the authority of the previous presidential administrations or that it was unwilling to adhere to government policy. However, both conceded in interviews that prior to SBY’s presidency, the military had been in a period of transition, ‘of fine tuning’ (S. Djalil, 2007) and that ‘sometimes officers not in the highest ranks were not under control or did not know what to do’ (Z. Arifin, 2007).

SBY’s conversion from a military to a political solution as a former general in the TNI and a minister in the GOI is explained in panarchy theory as an internal material development at the Indonesian military scale, below the GOI / central government scale. This thesis can not explain why his thinking changed without interviewing him but we already know that he thought the system was too rigid and that his work in the Sukarnoputri administration involved on-going dialogues with GAM negotiators. His change in thinking and desired approach to the conflict as well as others that supported that change, represent a small measure of cyclical scale material, ideas, or energy produced from within the scale that regularly re-enforced the Aceh-Indonesia rigidity trap. It was a revolt, as described in Chapter 2, pages 61-63; “A connection, which can cause a critical change in one cycle to cascade up to a vulnerable stage in a larger and slower one” (Gunderson and Holling 75, 2002).
The scale just above the TNI would be the GOI and that scale was undergoing its second regular election since the fall of Suharto. This second presidential election however had changed as well. The GOI scale had changed from a parliamentary presidential election system to a popular, directly elected presidential system. This created potential opportunity for new connections such as the electorate to the executive branch of government. SBY and his supporters were able to participate in the 2004 presidential election, win and thus enter new material for potential change (the political solution) as well as weaken the military solution trigger within the Aceh-Indonesia rigidity conflict scale. The explanatory framework of complex adaptive systems (CAS) theory provides a wonderfully conceptual and robust model in this respect. Had SBY not won the presidential election and Sukarnoputri remained president, experience and speculation recommend that the military solution would have continued in effect, possibly with attempted, not-serious, back door channels to GAM teasing for another ceasefire. The opportunity to direct change would have remained extremely limited, under the firm pressure of the TNI and the rigidity trap trigger of the military solution.

SBY won a landslide victory, receiving 62% of the popular vote and a clear mandate to pursue his campaign platform, including a political solution to the Aceh-Indonesia conflict. From the GOI and TNI system scales, the rigidity trap could now possibly be affected. “Immediately after the election but before SBY was sworn in, his Vice President Jusuf Kalla initiated talks with GAM domestically. When those talks failed to produce an agreement that could be implemented we realized we would have to talk to
GAM’s leadership in Helsinki” (S. Djalil, 2007). Talks with the GAM leadership eventually lead to firm plans to begin the first round of negotiation in Helsinki, Finland and just two days prior to the tsunami formal invitations had been sent out by the Crisis Management Initiative, the NGO that would broker the accord (Morfit 7, 2007, Barron and Clark 5, 2006). According to Muhammad Nur Djuli, GAM had already verbally accepted the invitation but added, ‘We were just being polite, but we did not have any expectations that new talks would have any success and we were not really committed to the process’ (Morfit 9, 2007). GAM’s position had not changed simply because SBY had been elected. GAM understood the GOI (Jakarta) possibly even better than Jakarta understood itself. In interviews with GAM negotiators, leaders and soldiers as well as interviewees from the International Development Practitioners group (made up of mostly long term Indonesian experts) Jakarta was often summed up similar to how Teuku Kamaruzzaman had rhetorically queried, “When we speak of Jakarta, we must always ask, who is Jakarta?” He went on to explain GAM’s pre-tsunami as well as post tsunami relationship with the central government as follows (via translation);

It’s complicated. First, Jakarta never has one voice. It has traditionally been difficult for GAM to give trust to Jakarta because it always has many different voices. Often the voice of Jakarta is not supported 100% by its civilian government or the military. So how can we ever trust what Jakarta says. Now, however, it’s better. GAM has high level channels with Jakarta and this is good for both sides (T. Kamaruzzaman, 2007).

Much has been written on GAM’s combat fatigue from the 2003 and 2004 military offensives and how that contributed to their willingness to enter negotiations pre and post
tsunami (see *Beyond Helsinki* by Michael Morfit 2007, *Aceh / Indonesia Conflict Analysis, Options for Systemic Conflict Transformation* by Edward Aspinall 2005 and the documentary *The Black Road* by William Nessen 2005) and while this may have put them at a disadvantage in negotiations, the argument ignores GAM’s major strength of reconstitution, which was already recognized by the SBY and Kalla team. Addressing this topic Muhammad Nur Djuli, a former GAM negotiator and current director at the Bandan Reintegrasi Aceh / Aceh Reintegration Agency (BRA) said;

> It was said that we were weakened because of the 50,000 soldiers sent by Jakarta for the military emergency rule. Yes, of course, when we had 3000 combatants facing 50,000 crack troops- we could not possibly defeat them in battle. But that did not have any influence over ending the struggle. Remember, at one time GAM had only 80 fighters and 30 weapons. We could fight for another 50 years if we had to and the central government knew it (M. Nur Djuli, 2007).

The opportunity for change and the toppling of the rigidity trap was finally present at the GOI scale. But from the GAM perspective nothing much had changed. The quick revolving presidential period simply appeared to continue as Indonesia elected its fourth president in five and half years. Jakarta’s talks and agreement with domestic GAM leadership prior to requests to speak to the Helsinki based leadership was just another indication to GAM that the GOI had not learned from previous negotiations how disciplined the movement was, with its military command in Aceh and its political leadership in Finland. In terms of the conflicts two phase cyclical nature, Jakarta’s renewed dialogues were going to be another cycle through the release ($\Omega$) phase, teasing with experimentation in a brief ($\alpha$) phase, and ultimately returning to a military operation
to preserve the Indonesian state while attempting to finish off the separatists. In short, the same trip with a different bus driver. The same non-cohesive, out of step policy approaches combining military action with cease-fire dialogue leading both antagonists directly back to preserved system of rigidity at the (K) phase. For panarchy theory what occurred next, while horribly devastating, was a rare massive cross scale event that would have a remarkable effect.
Plate Tectonics & Gerakan Aceh Merdeka

Collapsing panarchies are triggered generally by large, random, overwhelming events that can break through the sustaining properties of complex adaptive systems. These events tend to be external to the hierarchical cycles, and have the ability to destroy entire levels of differing, potentially unrelated panarchy systems. As one level is destroyed it generates a destructive cascade down successive levels of a panarchy system (Holling 399, 2001). See scale diagram on page 103.

The tsunami that struck the west coast of Sumatra was generated by an earthquake underneath the sea in an area known as the Sumatran subduction zone. This particular subduction zone occurs where the heavy Indian Ocean floor is forced under the lighter Indo-Australian plate. (See subduction diagram on page 104.) This is an extremely slow moving, natural system. Plate tectonic activity has been quite active in this particular zone and has provided regular earthquake activity on a small scale. It last produced large earthquakes in 1861 (Nias quake) and 1907 (Simeulue quake) which also produced a large tsunami killing approximately 1,800 people on Sumatra’s offshore islands (Reid 3-4, 2006). Recorded contemporary earthquake activity from 24 December 2004 through 9 January 2005 as well as past earthquakes with magnitudes greater than 7.0 are shown on the map on page 105.
Figure 9: Cross Scale Nested Set of Adaptive System Cycles

Adapted from Figure 3-9, Gunderson & Holling 74, 2002.
Graphic obtained from McGill Department of Geography
www.geog.mcgill.ca/faculty/peterson/susfut/panarchy/forestScaleAC.jpg
The topmost layers of the earth are referred to as crust. There are two types of crust; oceanic crust and continental crust. Oceanic crust is heavier than continental crust but both are part of earth’s upper layer known as the Lithosphere. The lithosphere is made up of large slowly moving plates which ride atop the extremely hot, solid, yet pliable Asthenosphere. The Sumatran subduction zone, west of Sumatra and beneath the ocean, produces earthquakes as the heavy Indian Ocean floor crust is forced under the lighter Indo-Australian plate crust and into the Asthenosphere.
Figure 11: Sumatra Subduction Zone & Seismicity Associated with Sunda Trench

Graphic obtained from US Geological Survey Western Coastal & Marine Geology
On December 24, 2004 this same plate tectonic system produced an earthquake measuring 9.0 on the Richter scale. The downward thrust of the seafloor pulled ocean water down with it. The reverberation of that initial pull then forced ocean water back up, which generated a wave heading off in all directions similar to the way a rock thrown into a pond produces a wave in a circular outward direction.

The tsunami slammed into the west coast of Sumatra, the brunt of which occurred in the province of Aceh. The tsunami destroyed virtually all human settlement and infrastructure along the northwest coast line and the provincial capital of Banda resulting in the death of approximately 170,000 people, mainly from Aceh. The Indonesian government, the TNI, the police, the people of Aceh and Gerakan Aceh Merdeka were in no way equipped to deal with the devastation and were in a collective state of shock.

One of the arguments often singled as a key factor to obtaining peace in Aceh has been what is called the tsunami factor. Many think the tsunami fundamentally changed everything about the Aceh-Indonesia Conflict (Morfit 7, 2007). Indeed, 95% of the individuals interviewed for this thesis, from the TNI, the GOI, GAM, and the groups CTS, and IDP have stated that without the tsunami the two sides would not have been able to achieve the peace or in the case of the GOI group, that the tsunami vastly accelerated the peace process. The remaining 5% felt that had there been no tsunami, the two antagonists would still be fighting, or in the words of Kevin Evans, ‘still perhaps
fumbling towards face-saving, enough to further an agreement being reached’ (K. Evans, 2007).

Responses to questions focused on the tsunami and how it related to the peace agreement from individuals intimately involved with various aspects of the conflict and tsunami, bring to light how prevalent the perceptions are of the role the tsunami had in ending the conflict and the development of peace;

“The tsunami was the equivalent of electric shock therapy, a sort of intervention” J. Bean, IOM Project Manager, Post Conflict & Reintegration Program, 2007.
“The tsunami acted as the booster rockets do before the space shuttle can make it out of the atmosphere and into space” Michael Båk, Acting Director Conflict Prevention and Response Team Director, USAID, 2007.
“The tsunami caused both parties to flinch, without either party losing face” Jennifer Chavez, Manager, Chemonics, 2007.
“The tsunami and the destruction it caused pushed the attempt for peace to the forefront, instead of the sideline activity it usually represented” Ann Shoemake, Nurani Dunia staff and doctoral Fulbright scholar.
“The tsunami placed all the people of Aceh to the center of global attention, in that everyone wanted to assist Aceh recover and we thought there must be peace first” Zainal Arifin, former AMM representative and current Expert Staff of International Corporation Press Officer GOI, 2007.
“It was an entry gate for the peace process” Argua, local GAM Leader Troop 21, Takengan, Aceh, 2007.
“In terms of conflict process, the tsunami was a regime changing event. It provided a whole sort of tsunami face-saving opportunities for both sides” K. Evans, BRR Anti-corruption Manager.
“Without the tsunami there would be no peace. It revealed Aceh’s conflict to the world and this brought the international community to Aceh” T. Kamaruzzaman Secretary of the Executing Agency of BRR NAD Nias & GAM negotiator, 2007.
The impact of the tsunami is often credited for ushering into the conflict scale important opportunities for change. Many Indonesian and Acehnese IDPs, like Ezki Suyanto and Muhammad Nasir (both with the International Organization of Migration at the time of field research) credit the tsunami with the arrival of the ‘internationals,’ as in the presence of international relief and development practitioners in Aceh, as the main instrument forcing the GOI and GAM to reach a peace settlement quickly. “The main positive impact of the tsunami was that it brought with it many international people who came to help the Acehnese” (E. Suyanto, 2007). Muhammad Nasir highlighted the effect of the tsunami similarly when he responded, “Since the tsunami ripped Aceh open, all international bodies and NGOs converged on Aceh. Their concern for the relief and the life of the Acehnese people provided a buffer between the TNI and GAM. And don’t fail to see that the tsunami ushered in the type of development that Aceh never received while under Indonesian rule and a 30 year situation of conflict” (M. Nasir, 2007). While neither of these perspectives is incorrect, they do not explain what changed for GAM after the tsunami.

The thesis has demonstrated that the new SBY administration had become an agent of change or revolt toward a maladaptive panarchy, cascading up from the TNI scale and into the leadership of the GOI. Those interviewed from the GOI group explained that for them, the devastation of the tsunami speeded up the process (S. Djalil 2007, Z. Arifin, 2007). But GAM, prior to the tsunami, maintained its struggle for independence orientation just as it had before SBY and Kalla were sworn into office.
While recent literature provides considerable views and debate on the impact of the tsunami pre vs. post MOU, it often cites a significant degree of moral pressure on both sides to resume negotiations (Aspinall 6 2007, Barron and Clark 5 2006). I do not argue this fact. However, I would emphasize that the moral obligation to seriously stop combat and assist the survivors of the tsunami was the motivating factor for GAM to cease-fire and negotiate a settlement, least we forget GAM’s major strength of breaking from the fight and reconstituting itself later in order to sustain the movement. Furthermore, immediately following the tsunami everyone, including GAM and TNI, was numb. The soldiers of both sides came across each other invariably as they searched for people and collected corpses. However, according to Muhammad Nur Djuli, just three days after the tsunami the TNI was mounting operations against GAM again. For GAM’s domestic leadership the tsunami fundamentally crushed any motive to fight. As many GAM members attest, moral obligations to their people changed their minds immediately.

While we had agreed to attend initial peace talks informally, in Helsinki in September 2004, for GAM, immediately after the tsunami it was much more important to save and assist our community. The community was more important than continuing any violent political conflict (T. Kamaruzzaman, 2007).

GAM’s view was that many people were dead from the natural disaster. We were concerned with this and the foreign NGO’s appeared to want to support peace between GAM and the GOI. The tsunami was the gate for the peace process (Argua, 2007).
In the tsunami more than 200,000 people died. It is simply cruel and inhumane to think of anything else other than to put down everything, even your weapons and help the survivors to rebuild. It was unthinkable for us with that kind of disaster to think of anything else, even our cause, because GAM is the Aceh movement, but without people, what kind of movement is that? We abandoned even that because we thought that it was simply unthinkable to think of anything else. Immediately after the tsunami, we declared a unilateral ceasefire and unfortunately Indonesia refused (M. Nur Djuli, 2007).

**Concluding Remarks**

This analysis does not discount the function of the internationals as a buffer or security blanket between the TNI and GAM nor the important work accomplished by CMI and President Attasari in Helsinki during the negotiations. These were important elements of system experimentation within the (α) phase that were engaged only after the tsunami’s cross-scale energies altered GAM’s thinking and approach to the conflict. GAM’s change in mindset at this point enabled it to combine with the new mindset in the SBY-Kalla administration and to release all the potential peace opportunities for testing, which finally collapsed the rigidity trap. As Kevin Evans, Anti-corruption Manager for the BRR and long time Indonesian expert described, ‘the main impact of the tsunami was that it was a regime changing event. It changed the mindset of those involved’.
CHAPTER 5: THE PANARCHY OF PEACE
Panarchy theory has enabled us to see the main characteristics or elements that sustained the Aceh-Indonesia rigidity trap. The theory has also provided us the explanation of the maladaptive system’s trigger, in the form of the TNI, that halted the system from ever truly reaching the experimental / reorganizing phase. This trigger mechanism did however allow for an initial period of experimentation which involved a key military and future political figure who would eventually act as the element of revolt from a lower scale (the TNI) to a higher scale (the executive branch of the GOI). This revolt of system capital contributed to the destabilization and collapse of the rigidity cycle or as the theory has speculated, acted as the seeds of its own destruction.

Panarchy theory has also assisted the thesis in determining exactly how the tsunami impacted the Aceh-Indonesia rigidity trap as it dramatically effected the second antagonist’s (GAM) commitment to its armed fight for independence, replacing it with a moral obligation to help its own devastated community. This change in mindset was caused by the cross-scale actions of plate tectonics upon GAM. This completed the destabilization of the rigidity trap, collapsing it, engaging creative destruction through the release of change opportunities. It’s these change opportunities that we will next examine through panarchy theory to identify key elements that have produced a complex adaptive system that appears to have the ability to sustain peace between the two partners, Aceh and Indonesia.
Back Loop Dynamics & Formal Reorganization

Much has been written in other studies of the Aceh-Indonesia peace talks that lead to the August 15, 2005 MOU. In many of these studies as well as the interviews I conducted, there was much positive praise given to former Finnish President Martti Ahtisaari for his mediation skills and to lead GOI negotiator, Indonesian Vice President Jusuf Kalla. As this thesis is focused on the testing of panarchy theory applied to the Aceh-Indonesia conflict, its rigidity, collapse and generation into a healthy complex adaptive system, these negotiations, their agreements and the roles of important actors in the formal negotiations are not examined. Kalla’s role was significant and I have no doubt that his actions represent an energetic degree of system material firmly identifiable in the post conflict scale in the experimental (α) phase.

The more important aspect of the negotiations was that 1) they accurately depict the Aceh-Indonesia adaptive system cycling within the testing and reorganization (α) phase or what is sometimes referred to as the back loop stage or back loop dynamics as transition from (Ω) to (α) occurs on the back side of the theoretical model. This phase of the cycle is characterized by rapid, uncertain innovations that lead to renewal (Gunderson and Holling 47, 2002) And 2) the negotiations, relatively quickly, resulted in a comprehensive MOU that had GAM renouncing independence as their end objective, scheduled TNI troop withdraws, scheduled GAM disarmament, allowed independent local political parties, guaranteed regular local elections, amnesty for GAM political prisoners, an agreement for a Truth and Reconciliation Commission, ex-combatant
financial assistance and the establishment of a third party MOU implementation and dispute organization to be known as the Aceh Monitoring Mission (AMM) (MOU Between GOI and GAM, 1-7, 2005). This landmark agreement formally settled the conflict and established a formal partnership between GOI and GAM allowing the new Aceh-Indonesia complex adaptive system (CAS) to fully enter the experimental (α) phase.

The re-assortment (α) phase still required more material testing as the Aceh-Indonesia CAS met and performed required disarmament, militia and military demobilization, troop withdraws and dispute settlements as well as a very comprehensive Acehnese stakeholder development and vetting process of a new comprehensive law for governing Aceh. A very active codification debate went back and forth between Aceh villages, GAM leadership and the Indonesian parliament. Less than one year later on August 1, 2006 The Law on Governing Aceh (LoGA) was formally passed (LoGA Unofficial Translation 2007).

The pace of change was remarkable. Direct elections were held in Aceh, including the participation of independent candidates and local parties for the positions of provincial governor, mayors and district heads on December 11, 2006 less than two years after the tsunami. Irwandi Yusuf, a young GAM leader, won the governorship (Renner 2006). GAM affiliated candidates won two mayoral positions and nine district head posts. At this time, having extended its stay twice already, AMM determined that it had
accomplished all that was required of their organization according to the MOU and announced it would depart Aceh on December 15, 2006. Upon first inspection, these developments had led me to believe that the Aceh-Indonesia CAS had begun to turn the corner or transition from the back loop to the front loop of the panarchy model. However, as we shall see from examining the categories selected for study, the system has not yet made the transition to the self-exploitive and increased efficiency (r) phase yet. The potential for change has been and remains high, connectedness or conserving ability has been and continues to be low, while resiliency has been high—‘allowing tests of novel combinations because system wide costs are low’ (Gunderson and Holling, 40 2002).

Transition from Back Loop to Front Loop (α) to (r)

This complex adaptive system theory is a heuristic model for understanding change. We have been able to see that changes in the Aceh-Indonesia conflict have not been linear in progression nor have they been evenly timed within a cycle. What these changes have had in common is that they have been episodic, generally dependent on system properties such as system wealth, connectedness and resiliency and that change has been influenced or impacted by the exchange of material from adjacent or distant scales cycling faster or slower in relation to the system scale of discussion. Understanding that change is phased or episodic allows us to determine where a current state is located in relation to cyclical and episodic change (Pritchard and Sanderson 152, 2002). So the questions that remain to be answered are, where is the Aceh-Indonesia adaptive system; \( (α) \), \( (r) \), \( (K) \), or \( (Ω) \)
and what identifiable material inputs may affect its cyclical flow or development towards another phase?

In the methodology section this thesis stated that there were ten categories of data selected for analysis. The tsunami and former general SBY as president categories have been covered. The remaining eight categories are used here, to determine where Aceh is in its complex adaptive system (CAS) and where it’s headed in the future. We have already become familiar with the scale connections of revolt and remember. Maladaptive rigidity was explained and proven, including the trigger mechanism that sustained the rigidity system between (K) and (Ω). It was proffered, just as the theory has suggested, that the system’s rigidity and trigger allowed for a brief period of play or tease in the (α) phase before the trigger directed released system material back towards the (K) phase.

Prior to analyzing the categories and determining Aceh’s current position within its CAS, another condition of panarchy, occurring in the testing (α) phase requires a brief explanation. Due to the (α) phase’s low connectedness condition, it maintains a characteristic known as leaky-ness (Gunderson and Holling 41, 2002). This leakiness refers to large amounts of system material that are either crossing scales or dropping out from the experimental stage as combinations are found not to lead toward improved sustainability. Though the material may be quite valuable in another combination, the material is leaked out of the system. Think of it as excess system material, energy, ideas or information that has been let go as the system evolves, determining what re-
assortments will work best. Again, the remaining eight categories are 1) the presence of internationals, 2) the departure of AMM, 3) natural resource royalties and management, 4) Sharia law, 5) economics and provincial government, 6) the Aceh-Jakarta relationship, 7) a return to violent conflict and 8) sustainable peace.

The Internationals

Before post tsunami peace negotiations ever began, the international community began to arrive in Aceh. Suddenly Banda and the west coast of Aceh were bustling with foreigners who were delivering food, water, fuel and temporary shelter. TNI, POLARI, and GAM, had they been inclined to kick up a fight, at least in and around the lowlands, would have been subject to hundreds of fair witnesses. “There were many eyes on the ground in the post tsunami period which provided a buffer between TNI and GAM” (M. Bäk, 2007). As James Bean, Project Manager for IOM’s Post Conflict & Reintegration Program in Aceh’s central highlands further explained,

The tsunami led to an unprecedented amount of aid and intervention by the international community. And they became an inter-mediator, albeit unawares a lot of the time, that would bear witness to what was going on. And they were disinterested in many respects. They were also neither pro-Aceh or pro-Indonesia, nor even necessarily against the conflict. They were being the international community. The Indonesian government was in no position to refuse the international response either. They had no idea how to deal with this and they knew they needed the help. The internationals became a fair witness which was very intimidating for the TNI or any army for that matter. All these foreigners, and all these Indonesian citizens (not from Aceh) who are witnesses to the dynamics of conflict make you, as a soldier, far more reluctant to engage in conflict type of activities, for example predation, that you otherwise would have done (J. Bean, 2007).
This immediate buffer and fair witness being provided by the international community, though not a formal organization or institution, provided the space for the experimentation (\(a\)) phase of the newly generated Aceh-Indonesia CAS with what might be described as a pair of training wheels. As the two antagonists gathered around former Finnish President Ahtisaari’s table at CMI in Helsinki to begin peace negotiations on January 27, 2005, TNI and GAM forces in Aceh were, for the first time in at least 15 years, mounting a tandem bicycle. This topic, second only to the impact of the tsunami and its effect on the peace process, received the highest (93%) positive response rate. All the groups (GOI, TNI, GAM, CTS, and IDP) recognized the positive results so many neutral actors had in Aceh. Not just in terms of tsunami relief but a strong recognition of the psychological calming effect, often referred to as a buffer or security blanket, the presence of the internationals in Aceh had on the peace process. Groups GAM, CTS and IDP expressed a strong desire for the internationals to remain as part of the peace and development process. Whether the internationals remain, however, will most likely be determined overall by the development process itself; financials, political will and social tolerance. Acknowledging the severe lack of skilled administrators and labor as well as the overall perceived need for internationals, I think Aceh’s CAS will carry this human material forward into the exploitive (\(r\)) phase.

**Departure of the Mandated Fair Broker**

Section 5 of the MOU covers the establishment of the Aceh Monitoring Mission with eight specific tasks. For the most part, interviewees from GAM, CTS, IDP and TNI
explained that AMM, sponsored by the European Union, did a very good job right up until the organization indicated it would depart at the end of its mandated tenure. GAM and Acehnese citizens were vocally uncomfortable with AMM’s decision to depart because from their perspective there were still remaining sticking points between the GOI and GAM on LoGA, the elections for the provincial legislature in 2009, processes of legislation change such as the Sukarnoputri administration’s Law No 18 for Nanggrooe Aceh Darussalam (NAD) that contradicted the LoGA and other laws, and continued violations, though not many, of the MOU that required the use of a fair broker. AMM extended their timeline twice by one to several months but after elections for governor, mayors and district heads was complete, AMM departed. From the perspective of GAM and the Acehnese people the MOU was not complete and the mandate required AMM to remain until both parties (GOI and GAM) were satisfied. A majority, 83% of the interviewees felt strongly that AMM had left either too quickly or without having completed their mandate. However, as discussions with interviewees progressed, the real crux of the problem was that AMM failed to plan an exit that satisfied their partners adequately. William Ozkaptan, Advisor to the Aceh Joint Forum to Support Peace, Chemonics, USAID explained;

AMM was a classic cease fire monitor and had no exit strategy. Post AMM mechanisms for sustaining the peace process and handling future disputes was non-existent. The parties previously in conflict should have had to agree to AMM’s departure. There was a need for a transfer of software (either to both the provincial and central government or to another 3rd party mandated organization) in regards to the conflict recovery implementation of the MOU. While the MOU itself was socialized quite well, AMM’s close out was not a socialized agreement- in that there was not an awareness of the agreement and
this is why initially you find so much anxiety in regards to the AMM departure (W. Ozkaptan, 2007).

The unsatisfactory exit explains why GAM leaders such as Teuku Kamaruzzaman and Muhammad Nur Djuli still express the need for a formal or even informal third party actor to assist with the completion of the MOU and LoGA or ‘an arbiter to ensure mutual understanding’ (T. Kamaruzzaman, 2007). GAM actually has support from TNI Colonel Ponoto, who served as an AMM representative. Colonel Ponto said,

Let’s assume, because our partner is saying so, that the MOU is not complete and AMM has departed. If the MOU is not finished then they left too soon. They did leave to soon. Why? Because the money ran-out. And now we have created a problem with GAM. Who do we communicate with now?” GAM dissolved and the intermediary is gone. If there is a dispute regarding the MOU, the decision maker is gone and GAM has no official designated representative for the GOI to communicate with. This is a problem and could ultimately lead to the resumption of violent conflict (Col Ponto, 2007).

Aceh and Jakarta find themselves in a clouded situation as GAM has formally been dissolved, the organization (AMM) mandated to mediate and monitor the implementation of the MOU is gone and when disputes arise now, the GOI has no formal partner and no third party actor to perform as the fair witness (W. Ozkaptan, 2007). I believe panarchy theory interprets this as a major drain from the experimentation and reorganization (\( \alpha \)) phase. This particular leakage could have significant negative effects on peace sustainability going forward.
Natural Resources Royalties and Management

The above leaky condition plays into the leaky-ness of Aceh’s natural resources, especially natural gas extraction. Ann Shoemake, an Indonesianist and former activist with the domestic NGO Nurani Dunia, epitomized most responses on this subject, “This is extremely important as natural gas, as a natural resource, has been cited repeatedly as one of the reasons GAM and Aceh wanted to separate from Indonesia. While the Acehnese won’t obtain much benefit from it because most of it is gone, it is vital that it not be a recessive factor in the peace process. Communication on natural resources between the GOI and Aceh will need to be open and transparent to prove that the royalties and management requirements have been successfully completed” (A. Shoemake, 2007).

The MOU guarantees that Aceh retain (not receive) 70% of the royalties derived from current and future hydrocarbon deposits (MOU between GOI and GAM, 2005). Additionally, the LoGA stipulates that Aceh manage or joint manage with Indonesia the deposits (M. Nur Djuli, 2007). Of those interviewed, 71% agreed that it was crucial for the provincial government to make public the amount of royalties derived specifically from natural gas as well as from all natural resources while 82% of those interviewed expressed the importance of the local Acehnese government to exercise management of the natural gas as stipulated in the LoGA.
At present however, Aceh does not retain any percentage of royalties on hydrocarbon deposits. While Aceh and Indonesia are currently in a joint management arrangement, the royalties go first to Jakarta and then the 70% is supposedly being returned but M. Nur Djuli stated, “So far we have not received one cent.” Djuli went on to explain that because the joint management agreement is coded into law, Aceh and Indonesia cannot just alter this situation as one might do in an organization or company. Aceh will have to wait a couple of years before they can confidently introduce a bill to change this arrangement. As it stands now, Aceh unfortunately does not have any organization capable to manage all aspects of the industry and it has been suggested that Aceh may not want to pursue hydrocarbon extraction deposits in the future (M. Nur Djuli, 2007).

Despite these conditions, all groups interviewed, with the exception of the GOI group, felt as LeRoy Hollenbeck, of Chemonics, USAID and Senior Advisor to the Governor of Aceh, stated; “This is extremely important. It’s time that the central government stop playing games with these budget numbers. The percentages are not as important as the actual amounts of money being derived from natural gas and even mining, forestry and fisheries because that is what is being generated from Aceh to Jakarta and Aceh should be entitled to 70% of X. At a minimum, just give us the correct numbers. At the end of the day, if it only generates 5% of the provincial budget, we couldn’t care less, but at least we would know.”
A few others such as, Alto Labetubun (IDP), Ezki Suyanto (IDP) and James Bean (CTS), while acknowledging the importance of the issue, were more inclined to think along the lines of Kevin Evans (IDP) who said,

It’s important for the Acehnese community to ask what the provincial government is doing with natural resource royalties because actually its more important for the public to start and hold the political elite of Aceh accountable for what they are doing. I get the sense this happens a bit less around here than it does in other parts of the country. Because this place was in conflict for so long, the people are not willing or used to asking questions of their elected officials. In many respects the Acehnese got left behind during reformasi. In various respects Aceh is several years behind the reformasi change and the new relationship between the citizenry and their elected leaders. So they have quite a bit of catching up to do. They are still in the early days of realizing that they can hold their leaders accountable (K. Evans, 2007).

Legally and to an extent politically, Aceh’s new complex adaptive system appears to be at the beginning stages of the practical profiteering (r) phase. Yet when one digs deeper into the system material, one can see that it has not finished testing initial combinations and in the case of natural resource royalties and management, the system is still leaking vital elements needed to evolve the system.

**Sharia Law**

The current Sharia law in Aceh was an addendum to the Special Autonomy Law for Aceh passed into law in 2001 during the Sukarnoputri administration. The law was developed without any Acehnese stakeholder involvement and against voiced opposition from GAM. There have been difficulties pertaining to interpretation, implementation and enforcement (J. Bean, M. Nasir, A. Labetubun, L.M. Natsir, 2007). In interviews, 83%
of those questioned agreed that the current Sharia law had caused and would only cause greater social and political difficulties were it to be fully enforced and implemented. Judges as well, are wary of a dual court system with cross court appeal capability. The GAM affiliated Governor of Aceh, Irwandi Yusuf, has expressed concern that the law could be used to the disadvantage of the poor while missing the powerful and corrupt (L. Hollenbeck, 2007). Alto Labetubun, Project Development Specialist for USAID explained a whole host of issues that revolve around the law;

Many surveys have been conducted to capture the concerns of ordinary people in Aceh (something not done when the law was created) and their concerns are that 1) there is no oversight of the self appointed Sharia police, 2) Sharia is still viewed incorrectly as political candy in the eyes of the Jakarta based politicians who claim to have “given” the Acehnese what they wanted. 3) Moderate Acehnese Muslims from the highlands, GAM’s main constituency have many concerns about how the law will be used and not used. 4) Women have complained that Sharia police unfairly target them (A. Labetubun, 2007).

Politically and socially this version of Sharia does not resonate with most Acehnese Muslims because as M. Nur Djuli explained, “This is an Islamic law passed by a secular state. How can Islamic law be implemented in a secular state? Furthermore, this religious law is subservient to Indonesian supreme-court rule (and therefore the secular courts) which means anyone found guilty in Islamic law can appeal the verdict all the way to the supreme court in Jakarta”.

There are additional issues surrounding the Jakarta-implemented Sharia law in Aceh. The Indonesian politicians purposively have a history of mislabeling the Acehnese since the first GAM rebellion in 1976. They have been labeled bandits, communists, religious
fundamentalists, Islamic extremists, ganja dealers and finally terrorists. It is quite possible, as has been suggested in an International Crisis Group report, that the Jakarta politicians during the Sukarnoputri administration had actually confused themselves regarding Acehnese identity and what GAM was actually fighting to achieve. The people of Aceh are also made up of different ethnicities and there are marked contrasts in culture, religious understanding, education and behavior that make the Jakarta delivered Sharia law impractical and un-organic. In an International Foundation for Election Systems (IFES) survey of 1203 Acehnese, 45% did not want Sharia law, 42% thought Sharia law should be implemented but did not want any religious organization monitoring their activities while only 8% thought this a good idea. (For more details on Acehnese Muslims see: Gender, Islam, Nationalism and State in Aceh; The Paradox of Power, Co-optation and Resistance by Jacqueline Aquino Siapno.)

With so much confusion I asked M. Nur Djuli what the future held for Sharia law in Aceh? He explained that in 2009 the first legislative election will be held with local as well as national parties, including a GAM political party. And as Governor Irwandi has said, if GAM controls the provincial legislature, they will repeal the Sukarnoputri law and work on developing an Acehnese based Sharia law.

Just as we had seen with the natural resource royalties and management re-assortments, the socio-religious law of the land, has been undergoing examination (α) phase rather than greater implementation which would take place in the (r) phase. Essentially what the
data has revealed is that there will be a future reassessment of Acehnese Sharia law, which leaves the current version of the law to be leaked out of the system. At this stage of the analysis it has become more apparent that the Aceh-Indonesia complex adaptive system has not yet turned the corner from the $(\alpha)$ phase to $(\rho)$ phase.

**Aceh Economics & Provincial Government**

These two subjects were produced by asking the interviewees what their major concerns for Aceh were at the time and moving forward from April 2007. Rather than percentages of agreement or disagreement, these two subjects were highlighted as important elements of system material that needed to be attended too for successful sustainable development and a continuation of the peace process.

The GOI and TNI groups were most concerned with improving provincial economics to increase jobs available for former combatant reintegration and the provincial (including all local) government’s ability to deliver public services, such as health, education, roads, food and water. Sofyan Djalil and Zanial Arifin had both been appointed to assist Governor Irwandi increase the administrative capacity of newly elected district heads with little skill or education. The GAM group was also concerned about improving economics to provide jobs for ex-combatants. Additionally, interviewees from the GAM group were concerned about the remaining 5-6 sticking points related to the LoGA and MOU and the old civil service blocking the Governor’s progress and continued peace.
While the CTS group had a shared concern for the economy in order to ensure job creation for former GAM combatants, they were much more focused on Governor Irwandi tempering Acehnese expectations for improvements. In an IFES report from February 2007, majorities in four specific issues; rebuilding key infrastructure (37%), economic development (44%) jobs creation (36%) and former GAM reintegration (43%) expected these issues to be solved in less than one year (IFES Public Opinion in Aceh post elections, 2007). The CTS group also pointed out that Aceh needed to maintain security, halt corruption and improve government delivery systems.

The IDP group held nearly every concern previously mentioned. IDP’s were keen on the need for livelihood projects (self employment) for reintegration, not just of combatants but entire communities. They had experienced insights on the vital need for local extension or outreach civil servants to learn or re-learn how to do development work. They were also cognizant of the end of what they referred to as “tsunami world” and the beginnings of sustainable development. Siefeldin Nimir, Country Director for Islamic Relief at the time of field research, explained;

At present labor is employed by 500 international and domestic NGO’s. When they are gone where will the labor find employment? The international good will is not sustainable in terms of livelihoods for Acehnese. They can not obtain financial independence this way and must prepare for the exit of the NGO’s and international funds. More to the point, there are no educational requirement standards or levels to provide incentives for skill upgrades. The lack of qualified personnel in Aceh means that immigrants and foreigners will continue to be hired, further frustrating the Acehnese (S. Nimir, 2007).
With so much to attempt and yet still so much more that has not been firmly established, it becomes more apparent that Aceh’s new complex adaptive system, despite three years beyond the collapse of the Aceh–Indonesia rigidity trap and a new system rich \( (\alpha) \) phase, remains at least several years from a back to front loop transition.

**The Aceh-Jakarta Relationship**

When asked about the current relationship between Aceh and Jakarta (the central government) 69% of interviewees expressed overall positive opinions in regards to this discussion topic. Tending toward disappointment a significant number of people mentioned the failed natural resource royalty and management issue or the remaining sticking points of the MOU as reasons that the relationship was not as good as it could be. Criminality, thought to come from arrangements made by the TNI and/or GOI as well as extortion type activities from some former GAM organizational structures also were mentioned. Concern for local government capacity building support followed. The most leaky-ness assessment came from William Ozkaptan, Advisor to the Aceh Joint Forum to Support Peace;

> Jakarta is of the opinion that their promises have been fulfilled. They are done with the peace process as it relates to the MOU. At the minister level and above, the process is complete. LoGA, the elections, these are done. Jakarta is possibly not taking the process seriously any longer. This cheapens the peace process. The TNI continues to do business. Logging and other services that the military has traditionally been involved in, continue (W. Ozkaptain, 2007).

While Ozkaptan’s view in this regard was echoed by many IDPs, CTSs and GAM, the majority of interviewees indicated that they thought the relationship and support for
Governor Irwandi from the GOI was very high and boded well for peace and economic development. This particular element of quality, senior level support between ministers of the central government and the governor of Aceh would indicate a degree of profit utilization at the \((r)\) phase. But with so many other Aceh system inputs undecided or incomplete, this high level of connectedness more than likely represents a closer move towards the \((r)\) phase rather than the systems overall episodic movement into a new phase location.

**Return to Conflict vs. Sustainable Peace**

One of the most telling discussion topics in regards to Aceh’s complex adaptive system phase position was obtained from two discussion points that ultimately related to the perceptions of interviewees on issues of trust, confidence and like or dislike. First, interviewees were asked, if they thought Aceh and Indonesia would ever return to a state of violent conflict? Second, they were asked, if the current peace process Aceh and Indonesia had enjoyed for the last two and half years was sustainable? Remember these interviewees were all people intimately familiar or involved in both the conflict and the peace process. Regarding a return to violent conflict between the two previous antagonists, (now partners) 38% expressed that a return to violent conflict would not occur but only 27% responded positively that Aceh and Jakarta had obtained a sustainable peace. Juwono Sudarsono’s response to both questions was informative and helps us understand that just because peace has broken out, doesn’t mean conflict system memory is not present. He explained;
There are still some sticky problems. First, some of the military and police are still suspicious that Irwandi’s election is only one step towards the most formidable challenge in the next ten years, a call for referendum [on Aceh independence]. Although, we would not allow politically a move toward that. Second, if it comes to the worst and the local governments fail to deliver, in essence Irwandi fails to deliver, he will be called to task by the GAM factions, not the central government. It’s his call. Our call in Jakarta is to provide trust in him that in the long term with improved delivery of basic services, of basic human needs, with improved employment and investment in key areas, a push for referendum will not snowball (J. Sudarsono, 2007).

Muhammad Nur Djuli had a similar revealing response;

GAM could not return to a state of violent conflict with Jakarta and certainly not with the militias because we have met, been accepted and we refuse to be provoked. If GAM wanted to start fighting again- we have no weapons, we have nowhere to go and would the international community accept us? No. So I am sure it is the end for us. But, if the recent provocations (in March and April 2007) continue then this agreement can not be implemented. Then it will be our children who may be forced to do it again. Like we were forced to when our parents made an agreement with Indonesia that was not and could not be implemented (M. Nur Djuli, 2007).

Both responses above reveal that solid mutual trust, confidence and genuine respect have not been sufficiently established between the two partners. This element represents part of what panarchy refers to as system memory, from the rigidity trap or a previous complex adaptive system. System memory influences and informs experimentation in the \(a\) phase. This memory may be the cause of some of the leakiness while at the same time it could assist the complex adaptive system by keeping the former antagonists mindful of their reorganization options as the system moves toward establishing a more efficient process in the \(r\) phase.
The above context helps in explaining why the percentages for end of conflict (38%) and the establishment of sustainable peace (27%) are so low. And as James Bean understands it, the negativity about the end of conflict and the sustainability of peace is a good thing. “People need to be careful and vigilant. This is by no means in the bag. This peace process is a long way from that. A bit of negativity about the peace process would actually be somewhat hopeful. It means people are paying attention and being vigilant.

**Concluding Remarks**

Analysis of these eight categories suggests that the current Aceh complex adaptive system remains in the \((\alpha)\) phase. The system may possibly be on the cusp of transitioning to the self exploitation \((r)\) phase in the areas of formal reorganization, internationals involvement in development and high level ministerial support but the majority of remaining categories; a fair minded broker, natural resource royalties and management, Sharia law, economics, provincial government, the Aceh-Jakarta relationship, a return to violent conflict and a sustainable peace appear very leaky in that these experiments have not resulted in solidified solutions. This overall condition of leakiness in major categories of concern among those involved in the peace process places the Aceh-Indonesia system firmly within the experimental \((\alpha)\) phase. The system could be described as evolving, moving toward a set socio-political system but one that has not established the connectedness to be identified as sustainable. Possibly when a majority of the eight categories have obtained a resolved status of reorganization, the Aceh system will be out of the swamp of experimentation and onto the transverse of the \((r)\) to \((K)\) phases.
Until then, this analysis recommends those involved in the new Aceh-Indonesia system to maintain their focus on experimentations resulting in successful solutions that move the system into the (r) phase and foster adaptable self-exploitation while avoiding elements that could once again trigger a rigidity trap or even a poverty trap. For the Aceh-Indonesia system the most promising practice to extend and solidify its panarchy of peace will be for the system’s most influential actors or elements to engage in sustainable development as defined by Holling in Chapter 2;

Sustainability is the capacity to create, test, and maintain adaptive capability. Development is the process of creating, testing, and maintaining opportunity. Together, sustainable development thus refers to the goal of fostering adaptive capabilities and creating opportunities.
CHAPTER 6: PANARCHY AS CONFLICT TRANSFORMATION UTILITY
As mentioned in the preface, I view this thesis as a jumping off point from studies in international sustainable development and environmental conservation. It is a first step into the study of conflict transformation through the lens of panarchy. I have only a limited degree of training in conflict resolution but found complex adaptive system theory to be a robust analytical tool that could bridge my interests and illuminate complicated cross scale dynamics in widely different systems. I have attempted to utilize panarchy theory in the conceptualization of a human built rigid conflict viewed as a system, and acted upon from inputs above the conflict’s scale.

**Challenges in Scaling Human Systems of Conflict Amidst Human Institutions**

In terms of conflict transformation and the cross scale dynamics of natural and human systems, panarchy scaling presents a difficulty in identifying scales of conflict. Explaining the Aceh-Indonesia conflict rigidity trap was easy as long as one remained within the system cycle or domain of rigidity. Similarly it was not difficult to conceptualize the natural plate tectonic system cycling slowly far above the human built systems of the Indonesian state, the military and the independence movement of GAM occurring within the provincial designated area of Aceh.

However, scaling the human conflict system of the Aceh-Indonesia conflict, the GOI and the TNI was a judgment on the part of the researcher as detailed in Figure 9: Cross Scale Nested Set of Adaptive System Cycles, page 103, Chapter 4. Where does a war system between two antagonists get placed in the panarchy conceptual model? Can the rigidity
trap of the conflict and the institutional systems at play within that conflict also be depicted as separate scaled institutions interacting with the rigidity trap in a cross scaled panarchy system? If the new CAS of the Aceh-Indonesia relationship occupies the former space of the Aceh-Indonesia rigidity trap as a transformed or flipped system then possibly conflict transformation studies will find panarchy theory of interest.
Figure 12 Panarchy Scales

Gunderson & Holling 74, 2002.
Graphic obtained from McGill Department of Geography
www.geog.mcgill.ca/faculty/peterson/susfut/panarchy/forestScaleAC.jpg
This thesis conceptualized the scales and explained the cross scale dynamics as having occurred in the following manner; from the TNI scale, situated below the GOI scale, a human initiated input from a former TNI general, became president and fostered change from both the GOI and TNI scales. From above, a slow moving natural system’s cross scale exchange of devastation from a tsunami motivated a change within the conflict’s two primary antagonists, especially for Gerakan Aceh Merdeka leadership.

Was the thesis successful? Critiques of this thesis as well as further investigation and exercises into other violent rigid conflict systems could prove that there has been a panarchy of peace achieved through the interplay of human and natural systems in Aceh. If those critiques are in agreement that the thesis has shown the usefulness of complex adaptive systems, then panarchy theory could prove useful in other conflicts that desperately need to be transformed from locked, rigid cycles of violence into healthy peaceful systems that have the capacity to sustain peace through adaptation. This thesis suggests that if antagonists could view their conflicts through this theory, then panarchy possibly offers a way to instigate transformation within those conflict systems, bringing adversaries to a more adaptable perspective. This is an area where political scientists, conflict transformation / resolution specialists and sustainability studies could focus their attention.
**Seeds of its Own Destruction?**

The second weakness in panarchy theory as it is applied to the Aceh-Indonesia rigidity trap is what makes a rigidity trap collapse? The theory suggests, similar to the poverty trap, that maladaptive systems contain the seeds of their own destruction. And in the Aceh-Indonesia rigidity trap I think the thesis successfully argued this dynamic as valid. However, what was it that changed SBY’s thinking as well as of those around him? When did this occur? Interviews suggest it occurred while SBY was a minister in Sukarnoputri’s cabinet while others, such as Indonesian Defense Minister Juwono Sudarsono think the political solution as the only solution for SBY occurred prior to that. These answers may already be held by Aceh-Indonesia historians or possibly conflict transformation practitioners and scholars need to investigate. But understanding more thoroughly how rigidity traps weaken and collapse without the effects of natural disaster would strengthen the theory’s applicability for use in defusing long standing violent conflicts around the world.

**Beyond Conservation Analysis**

Lastly, an overall weakness of panarchy theory is that it lacks much testing outside the nexus of human conservation systems and natural systems. Having the theory tested by political scientists and conflict transformation specialists would begin to provide a better idea of whether panarchy theory works within these academic disciplines as well as in practice. Any number of long running, violent conflicts around the world suggest the pervasive existence of human constructed rigidity traps; the violence in southern
Thailand, the conflict between Palestine and Israel, the conflict over Kashmir and Jammu, the conflict in Serbia, Bosnia and Kosovo that has required peace keepers since the late 1990s an the conflict in the Niger Delta. Conversely related to the Aceh-Indonesia conflict but especially interesting for panarchy testing of cross scale dynamics between natural and human systems, is the conflict between Sri Lanka and the Tamil insurgency where a peace agreement broke down rapidly after the tsunami struck the east coast of Sri Lanka. These rigid appearing conflicts provide fertile testing grounds for academic investigation of panarchy’s explanatory framework.

Concluding Remarks

Despite the few weaknesses this thesis encountered, I found the theory to be academically robust as well as pragmatic and malleable in application. The thesis has 1) proven the Aceh-Indonesian conflict to be a rigidity trap sustained through the perverse resiliency of the military solution; 2) shown that the rigid system of violent conflict collapsed and transformed into a new Aceh-Indonesia complex adaptive system. Third, the thesis was able to detail the collapse of the rigidity trap and the generation of a new healthy system as having derived from two fundamental elements. The first was the change in thinking that occurred in then military general and now President Susilo Bang Bang Yudoyono prior to the tsunami. This fact served to support the theory’s concept that a rigidity trap probably provides the seeds of its own destruction. Fourth, the change in mindset of the GAM leadership was derived mostly, if not solely, from the moral obligation to assist the
lowland Acehnese population which was devastated from the cross scale affects of a natural system following the tsunami of December 2004.
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Halludin. Personal interview. 03 Apr 2007.


Hollenbeck, L. Personal interview. 01 Apr 2007


Kamaruzzaman Teuku. Personal interview. 07 Apr 2007.


Marhaban, S. Personal interview. 05 Apr 2007


Nasir, Muhammad. Personal interview. 02 Apr 2007.

Nimir, S.A. Personal interview 23 Mar 2007


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Ponto, Colonel. Personal interview. 11 Apr 2007


Shoemake, A. Personal interview. 08 Mar 2007

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Additional Resources


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APPENDIX A
Field Interviewees

Adjar. Highlands GAM political leader.

Argua, GAM Field Leader Central Highlands. At time of interview was leading a highlands artists association and pursuing singing career. During conflict was first a military field command and later worked in Malaysia for GAM.

Arifin, Zainal, Government Representative on the Aceh Monitoring Mission. Position at time of interview was as Expert Staff for International Corporation Press Officer.

Bäk, Michael L. Conflict Prevention and Response Team Leader for USAID / Indonesia and was Acting Director at the time of interview. Mr. Bäk’s work involved him with leaders of GAM, the Government of Indonesia and the TNI as well as local Acehnese citizens and development practitioners. His efforts have been focused on reintegrating Aceh’s post conflict society.

Bean, James P. Project Manager, Post Conflict and Reintegration Program in the Central Highlands, International Organization for Migration Indonesia. Raised in Indonesia, deeply involved with conflict affected communities and ex-combatants in the central highlands.

Chavez, Jennifer. Manager Africa. While with Chemonics, Ms. Chavez served as her company’s overall field programs review officer in Indonesia for projects concerning post conflict development and reintegration. Ms. Chavez was able to provide an overall assessment of Aceh’s post conflict progress based on her follow ups in the field with Aceh based Chemonics personnel.

De La Cruz, Marites. Program Manager Aceh / Nias, Recovery and Rehabilitation International Organization for Migration Indonesia. At the time of interview Ms. De La Cruz oversaw IOM programs aimed at women’s Cooperatives and the development of women’s agency in and on the outskirts of Banda, Aceh.

Djalil, Sofyan A. Minister for Communication and Information Technology Republic of Indonesia. Dr. Sofyan served as a negotiator for the Indonesian government in Helsinki, Finland and had been appointed to a team to assist Aceh Governor Irwandi in efforts to develop Aceh provincial governance abilities at all levels.

Djuli, Nur, Muhammad. Senior GAM leader, GAM negotiating team Helsinki, and current Badan Reintegrasi Aceh (BRA) or Aceh Rehabilitation Agency Director. Mr. Djuli provided insight into how GAM approached negotiations, the war, politics, and the post conflict environment in Aceh.
Evans, Kevin R. Director of BRR-Anti-Corruption Unit and long time Indonesian and governance development expert provided in depth analysis of the Aceh-Indonesia conflict as a rigidity trap and its rebirth into a complex adaptive cycle as a post conflict political entity and society.

Hulludin. Highland GAM soldier of Gayo ethnicity. Highlighted the reasons why he and many highlanders took up arms against the Indonesian military.

Hamzah, Murizal. Senior Editor, Aceh Magazine. Mr. Hamzah has been stationed in Aceh and reporting on the conflict for many years. He provided insight into the difference between reconstruction, relief, and post conflict development work occurring in Aceh as well as observations on how Acehnese society has changed in post conflict and post tsunami environments.

Hollenbeck, LeRoy. Senior Advisor to the Governor of Aceh, worked under the Aceh Technical Assistance Recovery Project (A-TARP) and was employed by Chemonics at the time of interview. Mr. Hollenbeck has over 22 years of development experience in Indonesia and serves as political and developmental council to Aceh Governor Irwandi.

Kamaruzzaman, Teuku. Senior GAM Leader, involved in the negotiations in Helsinki. At the time of interview Mr. Kamaruzzaman was Secretary of the Executing Agency of Rehabilitation and Reconstruction NAD-Nias Executing Agency (BRR NAD-Nias).

Labetubun, Alto. Project Development Specialist in Aceh for the Democratic & Decentralized Governance Office. Due to the significant amount of US assistance in Aceh, Alto was extremely networked into GAM, the Indonesian government, the military, development, reconstruction and relief practitioner communities.

Marcoes-Natsir, Lies. Senior Program Officer, Aceh Programs, The Asia Foundation. Ibu Marcos-Natsir has been highly involved in developmental programs for Aceh, especially pertaining to women’s agency.

Marhaban, Shadia. Helsinki Negotiation Translator for GAM, former Aceh human rights activist and current President of Liga Inong Acheh (the Acehnese Women’s League) as well as spouse of William Nessen producer of The Black Road.

Nasir, Muhammad. Project Assistant / Specialist Outreach, Post Conflict and Reintegration Program, International Organization for Migration Indonesia. Nasir has been a long time women’s agency and human rights development practitioner. Nasir is also well acquainted with central highland GAM, central highland’s militia and TNI field leadership and soldiers.
Nimir, Seifeldin. At the time of interview Mr. Nimir was Country Director for Islamic Relief Indonesia. Mr. Seifeldin was able to provide a pre and post tsunami perspective on development, and relief related work in Aceh as well as experienced insight on education and employment issues facing Acehnese society.

Ozkaptan, William. Advisor to the Aceh Joint Forum to Support Peace, worked under the Aceh Technical Assistance Recovery Project (A-TARP) and was employed by Chemonics. Mr. Ozkaptan’s previous experience with peace development was in Bosinia-Hertzogovina. His insights into peace agreements and peace building assisted local leaders and activists in the forum, which serves as a diverse think tank and problem solver for the Acehnese governor.

Ponto, Suliman. TNI Colonel who served on the Aceh Monitoring Mission for the military. Provided insights into what was different about the Helsinki Memorandum of Understanding, the importance of SBY as a former general and president elect as well as learned opinions on partnership.

Prasodjo, Imam. Dr. Prasodjo is Director of Nurani Dunia, a domestic Indonesian non-government organization very active in conflict resolution and displaced persons relief. His organization was present in Aceh during the conflict and has been extremely active in Aceh post tsunami.

Rajasingham Senanayake, Darini. Dr. Rajasingham Senanyake, a Senior Fellow with the Sri Lankan Social Scientists’ Association, was able to shed some understanding on why the peace process in Sri Lanka broke down post tsunami while the Aceh-Indonesian peace process succeeded.

Ratih Kusumadewi, Lucia. Formally of the Peace Building Institute but now employed as a Program Development Consultant, International Relief & Development. Mrs. Ratih has been working in conflict resolution programs in Indonesia for several years, including Aceh.

Shoemake, Ann. Fulbright scholar and Indonesian domestic NGO worker focused on relief and conflict resolution. Provided a Javanese perspective on relief work in Aceh.

Sudarsono, Juwono. Minister of Defense, Republic of Indonesia and part of virtually every government since 1998. Minister Juwono provided a military and government perspective from the very top. He highlighted the failures of the past, SBY’s initial changed views of the conflict and difficulties of post conflict government delivery systems. He discussed the devastation of the tsunami and the importance of SBY as a former general and president elect.
Suyanto, Ezki. Previously a human rights reporter on Aceh, Mrs. Suyanto was a lead gender mainstreaming manager working with the police and military in Aceh while employed with the International Organization for Migration. She provided insight into how the mainstreaming efforts were being received, difference between reconstruction, relief, and post conflict development work occurring in Aceh as well as observations on how Acehnese society has changed in post conflict and post tsunami environments.
APPENDIX B
### Group Response Category Tracking

<table>
<thead>
<tr>
<th>Node</th>
<th>Group</th>
<th>Categories</th>
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<tr>
<td>S Djalil</td>
<td>GOI</td>
<td>[No Peace w/o Tsunami]</td>
<td>Agree 1</td>
<td>Disagree 0</td>
<td>Agree 1</td>
<td>Disagree 0</td>
<td>Agree 1</td>
<td>Disagree 0</td>
<td>Agree 1</td>
<td>Disagree 0</td>
<td>Agree 1</td>
<td>Disagree 0</td>
<td>Agree 1</td>
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<tr>
<td>Z Ariffin</td>
<td>TNI</td>
<td>[NRR Shown ?]</td>
<td>0 faster!</td>
<td>0 faster!</td>
<td>0 faster!</td>
<td>0 faster!</td>
<td>0 faster!</td>
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<td>0 faster!</td>
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</tr>
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<td>J Sudarsono</td>
<td>TNI</td>
<td>[Ctrl &amp; Mngt NR imp?]</td>
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<tr>
<td>Col. Ponto</td>
<td>TNI</td>
<td>[Aceh-Jakarta Rlnshp]</td>
<td>0 not imp</td>
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#### Node: S Djalil
- **Group:** GOI
- **Agree 1**
- **Disagree 0**
- **No Peace w/o Tsunami**
- **NRR Shown?**
- **Ctrl & Mngt NR imp?**
- **Aceh-Jakarta Rlnshp**
- **SBY infl TNI**
- **Intl County Role still needed?**
- **AMM Departed Early?**
- **Shrya Law negative 4 Aceh?**
- **Concerns provincial Governor**
- **Return to Conflict?**
- **Sustainable Peace?**

#### Node: Z Ariffin
- **Group:** TNI
- **Agree 1**
- **Disagree 0**
- **No Peace w/o Tsunami**
- **NRR Shown?**
- **Ctrl & Mngt NR imp?**
- **Aceh-Jakarta Rlnshp**
- **SBY infl TNI**
- **Intl County Role still needed?**
- **AMM Departed Early?**
- **Shrya Law negative 4 Aceh?**
- **Concerns provincial Governor**
- **Return to Conflict?**
- **Sustainable Peace?**

#### Node: J Sudarsono
- **Group:** TNI
- **Agree 1**
- **Disagree 0**
- **No Peace w/o Tsunami**
- **NRR Shown?**
- **Ctrl & Mngt NR imp?**
- **Aceh-Jakarta Rlnshp**
- **SBY infl TNI**
- **Intl County Role still needed?**
- **AMM Departed Early?**
- **Shrya Law negative 4 Aceh?**
- **Concerns provincial Governor**
- **Return to Conflict?**
- **Sustainable Peace?**

#### Node: Col. Ponto
- **Group:** TNI
- **Agree 1**
- **Disagree 0**
- **No Peace w/o Tsunami**
- **NRR Shown?**
- **Ctrl & Mngt NR imp?**
- **Aceh-Jakarta Rlnshp**
- **SBY infl TNI**
- **Intl County Role still needed?**
- **AMM Departed Early?**
- **Shrya Law negative 4 Aceh?**
- **Concerns provincial Governor**
- **Return to Conflict?**
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<th>Concerns provincial Governor</th>
<th>Return to Conflict? Sustainable Peace?</th>
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<tr>
<td>Nur Dijuli</td>
<td>1 had no choice</td>
<td>1 initially yes</td>
<td>1 its in MOU &amp; LoGA</td>
<td>1 Executive branch its good</td>
<td>Unclear, J Kalla more imp</td>
<td>NA</td>
<td>1 YES MOU not completed</td>
<td>1 yes</td>
<td>Civil Service blockage, inherited budget, Jakarta &amp; expectation of people</td>
<td>1 GAM vs militia never, We r done, 0 But our children and this current provocation</td>
</tr>
<tr>
<td>Kamaruzzman</td>
<td>1 agree</td>
<td>1 yes</td>
<td>1 yes</td>
<td>1 good w executive branch</td>
<td>1 yes</td>
<td>1 yes</td>
<td>NA</td>
<td>6 specific concers</td>
<td>NA</td>
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<tr>
<td>S Marhaban</td>
<td>1</td>
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<td></td>
<td></td>
<td>1 he wanted to he ould do it &amp; imp Indo rep intly, Path Dem</td>
<td>NA</td>
<td>1 Yes MOU not compelted</td>
<td>1 yes</td>
<td>Excombata nts jobs, educationec on growth, sustaining peace</td>
<td>1 No, not armed GAM vs TNI. 0 Criminality could generate violent conflict though</td>
</tr>
</tbody>
</table>

<p>| Hallidin     | 1 forced us to find solution quickly | NA | NA | 1 executive branch its good | NA | NA | NA | NA | 6 remaining points not achieved | 0 war possible 0 to be seen |
| Argua        | 1 | 0 no | 0 no | 1 yes but | 1 yes | NA | 1 yes | Econ Edu health | 0 MOU war pos NA no answer |
| J Bean       | 1 | 1 yet should they be exploiting it in 1&quot; | 1 more than shown but again- people hav never seen it. They | NA God committed to peace | 1 | 1 | 1 yes | 1 Inter provincial govt delivery Need 4 | 0 possible 0 to be seen- fixed concern here 4 a return to rigidity! TNI &amp; GoI don’t seem |
|---------------------|-----|------------------|------------|-------------------|---------------------|-------------|-----------------------------------|-------------------|--------------------------|---------------------------------|-------------------|---------------------|
| M Bak               |     |                 | 1          | 1                 | 1                   | 1           | 1 eyes on ground &amp; buffer or blanket still needed NA | 1 but it an issue now? | NA                       | NA Eco Emp R&amp;R, Security mostly expectation s | Extortion is an issue. | NA NA                  |
| W Ozkaptan          | NA  | 1                | 1          | 1                 | 0 supportive but less serious not good | 1 but | 1 eyes on ground- still needed NA | 1 | NA | All the above especially inter gov inter GAM |                      |                      |
|                      |     |                  |            |                   |                     |             |                                   |                  |                           |                                 |                   |                     |
| E Suranto           | IDP | 1                | 0          | 0                 | 0 JKT Wait &amp; see | NA          | 1 Needed for 5 more years | 1 NA | 1 yes only affects poor | Culture of Corruption | 0 possible inter GAM 1 yes |                      |
| K Evans             |     | 1                | 1          | 1 but it’s the people’s responsiblity | 1 but same as to left | NA | 1                           | 0 | 0 probably but… | Pressure from groups | 0 possible 1 better chance this time round |                      |
| A. Labetuban        |     | 1                | 0          | 1                 | 1 God supportive kept promises | 1           | 1 needed for development | 0 | 1 | Econ gov services reintegratio n excbmt inter gov | 1 No return to war Gov GAM | 0 possible internal war lords though |                      |
| L. Hollenbeck       |     | 0                | 1          | 1                 | VP Pres &amp; Gov good relationshi p, On ground people | 1 end of day SBY makes decision | 1 | 1 | NA does not know. But undstd its an issue | Fiscal mngt Accountabili ty Loss focus major players Crime | Leaning towards both but need more time |                      |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>1</th>
<th>1</th>
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<th>1</th>
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<td>NRR</td>
<td>Ctrl &amp; Mngt</td>
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<td>Aceh-Jakarta Rltnshp</td>
<td>SBY infl TNI</td>
<td>Intl Comty Role &amp; still needed?</td>
<td>AMM Depated Early?</td>
<td>Shrya Law difficult 4 Aceh?</td>
<td>Concerns Aceh/ Provincial Governor</td>
<td>Return to Conflict? Sustainable Peace?</td>
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<td>KPA mngmt BRA, BRR</td>
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<tr>
<td>Totals</td>
<td>18/19= 95%</td>
<td>12/17= 71%</td>
<td>14/17= 82%</td>
<td>9/13= 69%</td>
<td>12/16= 75%</td>
<td>14/15= 93%</td>
<td>10/12= 83%</td>
<td>10/12= 83%</td>
<td>6/16= 38%</td>
<td>4/15= 27%</td>
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