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# THESIS

**THE DRUG PROBLEM: A SYSTEM DYNAMICS APPROACH TO MEXICO'S CASE**

by

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For decades, the drug problem has been approached primarily in the context of a war on drugs, in which militaries and law enforcement agencies are used to execute drug prohibition and punitive policies. So far, this solution has only managed to increase the resilience of illegal drug supply chains to the detriment of the resilience of individuals, states, and the international order, as the case studies of Mexico and Brazil demonstrate. By contrast, case studies of Switzerland and Peru exemplify the advantages of pursuing a broader, system-oriented approach. This thesis examines the advantages of exhaustively studying a problem to offer sound alternative solutions. In their role as problem solvers, systems thinkers must provide decision makers with reliable tools to implement strategies with the greatest probability of success. Thus, the study of the complex drug problem cannot be limited to fragmented analyses that offer short-term solutions based on simplistic heuristics. This thesis uses qualitative-exploratory analysis, case studies, and system dynamics concepts to capture the drug problem structure and behavior in causal loop diagrams. In the case of Mexico, the application of these tools and methodology leads to recommending the development of legitimate job opportunities—guiding government and non-government investment and improving security conditions—as a potential leverage point alternative to the war on drugs's punitive policies for mitigating the drug problem.

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# THE DRUG PROBLEM: A SYSTEM DYNAMICS APPROACH TO MEXICO'S CASE

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# ABSTRACT

For decades, the drug problem has been approached primarily in the context of a war on drugs, in which militaries and law enforcement agencies are used to execute drug prohibition and punitive policies. So far, this solution has only managed to increase the resilience of illegal drug supply chains to the detriment of the resilience of individuals, states, and the international order, as the case studies of Mexico and Brazil demonstrate. By contrast, case studies of Switzerland and Peru exemplify the advantages of pursuing a broader, system-oriented approach. This thesis examines the advantages of exhaustively studying a problem to offer sound alternative solutions. In their role as problem solvers, systems thinkers must provide decision makers with reliable tools to implement strategies with the greatest probability of success. Thus, the study of the complex drug problem cannot be limited to fragmented analyses that offer short-term solutions based on simplistic heuristics. This thesis uses qualitative-exploratory analysis, case studies, and system dynamics concepts to capture the drug problem structure and behavior in causal loop diagrams. In the case of Mexico, the application of these tools and methodology leads to recommending the development of legitimate job opportunities—guiding government and non-government investment and improving security conditions—as a potential leverage point alternative to the war on drugs's punitive policies for mitigating the drug problem.

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# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| CIA | U.S. Central Intelligence Agency |
| CLD | Causal Loop Diagram |
| CONADIC | National Commission Against Addictions |
| CRS | Congressional Research Service |
| DEA | Drug Enforcement Administration |
| DTS | Drug Trafficking Structure |
| GCDP | Global Commission on Drug Policy |
| HAT | Heroin Assisted Therapy |
| NGO | Non-Governmental Agency |
| PGR | Attorney General of the Republic |
| SD | System Dynamics |
| SP | Shining Path |
| UN | United Nations |
| UNODC | United Nations Office on Drugs and Crime |
| UHV | Upper Huallaga Valley |
| UPP | Pacifying Police Unit |
| WD | War on Drugs |
| WHO | World Health Organization |

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To my wife and daughters: Companions in adventures and the motive and reason for all effort.

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# I. INTRODUCTION

## A. BACKGROUND

In arguments about policies intended to counter the illegal trafficking of drugs, traditional thought holds that if there are armed groups dedicated to drug trafficking, there must be government forces to combat them. This narrative of cause and effect is engaging for its simplicity and the several factors that strengthen it. For example, almost since its inception, the war on drugs (WD) strategy has been deemed a "failure" in many opinion pieces and think-tank publications because, besides its high cost and questioned results, it results in violence, death, mass incarceration, corruption, and political destabilization.[1] Yet, at least two factors contribute to this skewed perception of the WD. The first factor lays in the genesis of the term. In 1971, President Richard M. Nixon coined the expression "war on drugs,"[2] correlating the public policy with the use of warlike resources and violence. The second factor is that the word "war" implies the engagement of two or more antagonists to settle differences. Derived from that policy's warlike idea and the word "drugs," the attention is oriented, on the one hand, towards the state's police and military forces, and on the other hand, towards all the armed criminal groups intervening in the drug-supply chain.

Meanwhile, most popular media outlets compete for the coverage of armed confrontations between authorities and drug traffickers, seizures of noticeable drug shipments, or political struggles about budget allocations for the security forces to combat drug trafficking. Besides, the entertainment industry, film, and television have often romanticized drug trafficking, sometimes apologizing for the criminality involved. Thus, in the struggle for audience share, the vast majority of popular media guide public opinion toward the physical confrontation between criminals and authorities, generating an availability bias that distorts much of the subject's formal discussions.

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[1] George P. Shultz and Pedro Aspe, "The Failed War on Drugs," *The New York Times*, January 1, 2018, sec. Opinion, https://www.nytimes.com/2017/12/31/opinion/failed-war-on-drugs.html.

[2] Chris Barber, "Public Enemy Number One: A Pragmatic Approach to America's Drug Problem," *Richard Nixon Foundation* (blog), June 29, 2016, https://www.nixonfoundation.org/2016/06/26404/.

Moreover, the journalistic and academic analyses and debates often fail to recognize the systemic characteristics of the drug problem and attempts to counter the problem. For instance, in many of these studies, alternatives to direct confrontation revolve around legalization or government control of the supply of drugs; however, they generally fail to recognize the effects of such proposals over extended time frames or their impact on other areas of social activity. This lack of systems thinking misses a complex underlying reality and potential alternatives or complements to the traditional military and law enforcement frontal fight against drug trafficking organizations. Over the long term, the problem has persisted and worsened. These factors have spread the idea that WD is only a policy confronting security forces and members of the Drug Trafficking Structures (DTS), leaving aside, for instance, political, economic, and social aspects related to the genesis and effects of the WD.

From another perspective, to guarantee the best chances of success in exploiting intelligence work means that the Special Forces of the leading military and security corps receive a large part of the frontal combat burden against criminal organizations. This operational prominence exposes government forces to a great deal of media coverage, putting their credibility and prestige at stake. There has been very little research focused on the specific role of Special Forces to understand the drug problem's system dynamics better.

## B. RESEARCH QUESTION

The research questions this thesis addresses are: What are the underlying system dynamics of the drug problem in Mexico; and, are there leverage points that could be exploited to reduce the drug problem by changes in public policy?

# II. LITERATURE REVIEW

This literature review draws on systems theory and explores topics in different human knowledge fields associated with the drug problem. The first section focuses on concepts of systems thinking and system dynamics as disciplines of systems theory.[3] Drawing on the three analysis images established by Kenneth Waltz in studying international relations,[4] the second section explores the drug problem perceived as a threat by the individual, the state, and the international system. The third section considers those entities' resilience from Rodrigo Nieto-Gomez's adversarial innovation perspective. Finally, the biases and misconceptions surrounding the drug problem are reviewed in the fourth section. This chapter aims to introduce the systems perspective and terminology from which the drug problem is analyzed and to illustrate the problem's complexity and bounds.

## A. SYSTEMS THEORY

Russell Ackoff contrasts the machine age with systems thinking.[5] The former decomposes a whole (analysis), studies its constituent parts, and finally, synthesizes individual findings to explain the whole. In this analytical process, Ackoff identifies "structure" as the main focus and "how things work" as the final finding. By contrast, systems thinking first identifies the system to which the component to be studied belongs (synthesis) and later explains the behavior as a whole. Systems thinking explains the component's behavior in terms of its function within the system. The synthesis process associated with systems thinking has a functional focus and seeks to explain why things operate in a certain way. Complementing Ackoff, Yuri Raydugin argues that "Systems

[3] Yuri Raydugin, *Handbook of Research on Leveraging Risk and Uncertainties for Effective Project Management*, Advances in IT Personnel and Project Management (AITPPM) Book Series (Hershey, PA: IGI Global, 2016), 157.

[4] Kenneth Waltz and Stephen M. Walt, *Man, the State, and War: A Theoretical Analysis* (New York: Columbia University Press, 2018).

[5] Russell Lincoln Ackoff, *Creating the Corporate Future: Plan or Be Planned For* (New York: Wiley, 1981), 16–19.

Thinking is a causality driven approach to describe the inter-relations between parts and systems."[6]

In contrast to the qualitative nature of systems thinking, Raydugin ascertains that system dynamics (SD) "quantifies the impact on the interactions between parts and systems."[7] Norman Porter details the concept affirming that SD is a mathematics, physics, and engineering-based tool that can be applied in behavioral, physical, and technical areas.[8] The broad spectrum of fields that SD comprises makes it a multi-disciplinary technique that can provide insight into bounded systems. Porter concludes that SD is a tool that could be helpful in planning, policy analytics, and decision-making in uncertain and complex environments. System is a central concept in the literature about systems thinking and system dynamics.

Donella Meadows defines a system as a "set of elements or parts coherently organized and interconnected in a pattern or structure that produces a characteristic set of behaviors, often classified as its 'function' or 'purpose.'"[9] This definition highlights the importance of structure to understand a system's behavior. System dynamics offers the graphical solution of causal loop diagrams (CLD) to assess the system's structure and, therefore, its behavior. CLDs are representations of the feedback structure within systems.[10] According to Porter, in a CLD, the interaction between independent (causes) and dependent (effects) variables are presented with polarity.[11] On the one hand, a positive (reinforcing) polarity indicates that as the cause increases or decreases, the effect changes in the same direction. On the other hand, an inverse change in the effect as compared to an

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[6] Raydugin, *Handbook of Research on Leveraging Risk and Uncertainties for Effective Project Management*, 157.

[7] Raydugin, 157.

[8] Norman Wayne Porter, "The Value of System Dynamics Modeling in Policy Analytics and Planning," in *Policy Analytics, Modelling, and Informatics: Innovative Tools for Solving Complex Social Problems*, ed. J. Ramon Gil-Garcia, Theresa A. Pardo, and Luis F. Luna-Reyes (San Antonio, TX: Springer International Publishing, 2018), 124, https://doi.org/10.1007/978-3-319-61762-6_6.

[9] Donella H. Meadows, *Thinking in Systems: A Primer* (White River Junction, VT: Chelsea Green Pub., 2008), 188.

[10] Porter, "The Value of System Dynamics," 124.

[11] Porter, 124.

increase or decrease of the cause is represented with negative polarity (balancing feedback). An even number of negative feedback instances indicates a reinforcing behavior in the loop, whereas an odd number means that the loop has a balancing behavior.[12] John Sterman stresses the importance of feedback processes by attributing to them the dynamics of all systems and analyzes learning from a feedback perspective.[13]

To Sterman, learning variants are single- and double-loop from the feedback point of view (Figure 1).[14] In single-loop learning, the decisions are based on rules defined by the mental models at hand. The implemented strategies impact reality, and decision makers adjust further decisions with feedback from the real world. The adjustments are given with the wishful thinking that the results will be improved the next cycle, but it does not always work that way. Double-loop learning establishes a bridge between the real-world feedback and the mental model. Consequently, the mental model is adjusted, resulting in changes in the strategies, the systems' structure, and decision rules leading to different decisions. The change in the system's structural perception allows defining its boundaries and the beliefs regarding how cause-effect relationships operate, which drives reasonable adjustments on the terms articulating the problem.

[12] John Sterman, *Business Dynamics: Systems Thinking and Modeling for a Complex World* (Boston,MA: Irwin/McGraw-Hill, 2000), 144.

[13] Sterman, 14–19.

[14] Sterman, 14–19.

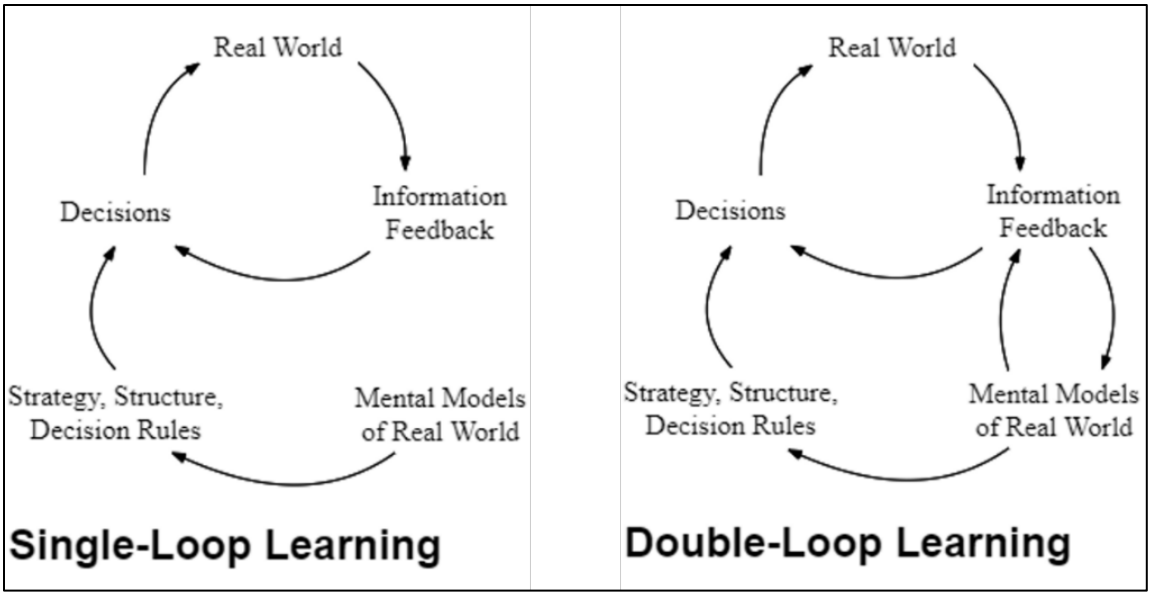


Figure 1. Single- and double-loop learning processes.[15]

One of the obstacles to double-loop learning is complexity.[16] By defining a system as "complex," Scott E. Page adds to Meadows's definition the characteristic of "adaptation,"[17] which gives greater dynamism to the temporal and spatial dimensions of the system. Cynthia Kurtz and David Snowden refer to adaptation as emergent order and introduce the Cynefin framework as a sense-making tool to assess problems (Figure 2).[18] The Cynefin framework offers five domains—known, knowable, complex, chaos, and disorder—to classify a problem under criteria that categorize the cause-effect relationships between the problem's components.

[15] Adapted from Sterman, 16.

[16] Sterman, 20.

[17] Scott E. Page, *Understanding Complexity*, 1st edition (Chantilly, VA: The Teaching Company, 2009), 9.

[18] Cynthia F. Kurtz and David J. Snowden, "The New Dynamics of Strategy: Sense-Making in a Complex and Complicated World," *IBM Systems Journal* 42, no. 3 (2003): 463–83, http://search.proquest.com/docview/222428634/abstract/F57F3B7838B146FFPQ/1.

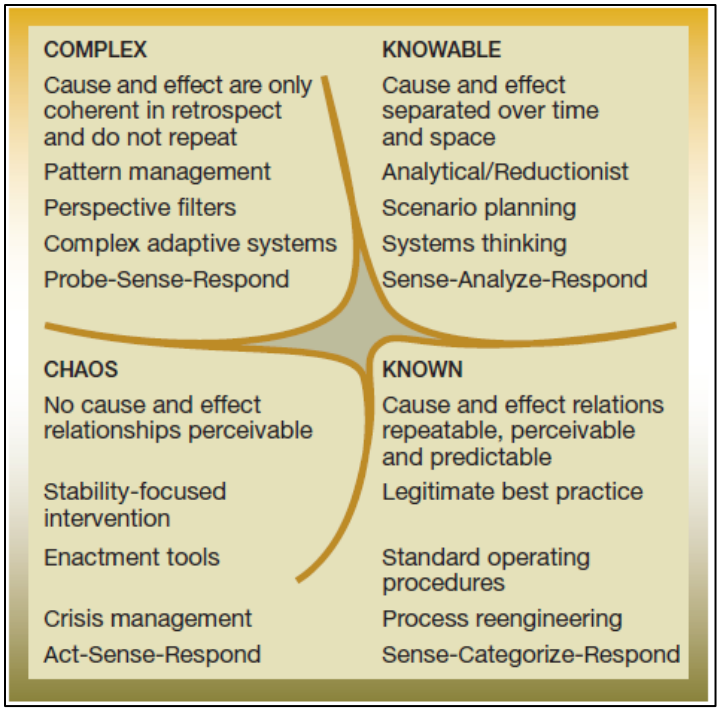


Figure 2. Cynefin framework.[19]

Kurtz and Snowden consider that the knowable and complex domains are the only ones where the connections between the systems' agents are strong, and emergent patterns form on their own.[20] They also raise the possibility that problems can move between the Cynefin framework's domains and recommend certain techniques for such end. For example, from complex to knowable, they affirm that "exploitation…involves the selective choice of stable patterns in complex space for ordered representation."[21] In this case, real-world information is needed to identify the system's patterns and to be applied when needed to adjust these patterns. This information can be equated with the connection established by double-loop learning between real-world feedback and mental models.

Systems thinking and system dynamics, along with system, causal loop diagram, feedback, double-loop learning, and complexity are useful terms and concepts related to

[19] Source: Kurtz and Snowden, 468.

[20] Kurtz and Snowden, 470.

[21] Kurtz and Snowden, 477.

solving strategic problems and making strategic decisions. This thesis makes use of them in assessing the drug problem.

## B. THE DRUG PROBLEM SCOPE

One of a system's characteristics is hierarchy. In this regard, Meadows recommended not to "maximize parts of systems or subsystems while ignoring the whole."[22] That is why this section focuses on reviewing the drug problem in the context of individuals, states, and the international order. The objective is to have a broad understanding of the structure and feedback dynamics of the drug problem as a system.

### 1. The Individual

The association of individuals and societies with drugs has its origins in primitive hunter-gatherer societies that used plants for pharmacological purposes.[23] After that, societies gradually expanded their experiences and knowledge of drugs. Marc-Antoine Crocq affirms that the use of psychoactive substances throughout history falls into three main categories: religious, medical, and recreational purposes.[24] Regarding religious ceremonies, reference is made to the religious authorities of the original tribes and groups who sought hallucinogenic effects by ingesting plants and vegetables in order to communicate with their deities and ancestors. Medicinal use primarily refers to prescription or over-the-counter drugs to treat diseases and their effects, such as pain. The recreational use of drugs refers to their voluntary use by an individual to experience relaxation, alertness, or euphoria.

The underlying factors and individual motivations leading to drug consumption are complex. The United Nations Office on Drugs and Crime (UNODC) points out factors that "at the personal level (including behavioral and mental health, neurological developments

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[22] Meadows, *Thinking in Systems*, 178.

[23] "Ötzi, the man whose frozen body was recovered in the Alps in 1991, lived about 3300 years BC, and carried in his pouch a travel pharmacy including a polypore fungus with antibacterial and hemostatic properties." Marc-Antoine Crocq, "Historical and Cultural Aspects of Man's Relationship with Addictive Drugs," *Dialogues in Clinical Neuroscience* 9, no. 4 (December 2007): 355, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3202501/.

[24] Crocq, 355.

and gene variations resulting from social influences), the micro level (parental and family functioning, schools and peer influences) and the macro level (socioeconomic and physical environment) can render adolescents vulnerable to substance use."[25]

Beyond the "acceptable" use of drugs, addiction has received extensive academic attention. Crocq studies drugs' potentially addictive effects and the idea of a trade-off between drug use and the distortion of reality as a reward, citing some factors contributing to addiction—including genetics.[26] Furthermore, Peter Kalivas and Nora Volkow characterize addiction as a disease, relate the addiction to a selection process involving the individual's will, and refer to the availability of drugs as a stimulus for addiction.[27] Apparently, this hypothesis has guided many of the primary efforts to solve the drug problem. The intention so far has been to simply reduce or deny access to the drug supply as a deterrence and control mechanism.

The drug trade can also be viewed in the context of an individual, whether directly and indirectly participating. Direct involvement implies the individual's participation in illegal conduct—like gunmen or traffickers who do so mainly to profit. Merrill Singer et al. assert that the people atop the drug trade are wealthy and, at the bottom, "All of the jobs within the illicit drug trade must be considered forms of precarious labor as a result of the War on Drugs, drug industry rivalries, and the lack of protections for workers from unsafe working conditions."[28] The study adds that collaboration can be forced by "physical coercion and even various forms of enslavement or by [kin-based] membership arrangements."[29] Eugen Dimant and Guglielmo Tosato also discuss the role corruption

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[25] United Nations Office on Drugs and Crime, *World Drug Report 2018* (Vienna, Austria: UNODC Research, 2018), 17, https://www.unodc.org/wdr2018/.

[26] Crocq, "Historical and Cultural Aspects of Man's Relationship with Addictive Drugs," 358.

[27] Peter W. Kalivas and Nora D. Volkow, "The Neural Basis of Addiction: A Pathology of Motivation and Choice," *The American Journal of Psychiatry* 162, no. 8 (2005): 1410, https://doi.org/10.1176/appi.ajp.162.8.1403.

[28] Merrill Singer, William Tootle, and Joy Messerschmidt, "Living in an Illegal Economy: The Small Lives That Create Big Bucks in the Global Drug Trade," *The SAIS Review of International Affairs* 33, no. 1 (2013): 131, https://doi.org/10.1353/sais.2013.0010.

[29] Singer, Tootle, and Messerschmidt, 132.

plays in advancing the drug trade, offering that "officials with a higher wage are less likely to engage in corrupt practices," but "individuals may still take bribes due to greed."[30]

People's indirect participation in the drug trade includes their failure to denounce crimes committed by DTSs. In Mexico, for example, multiple cases document that among the conditioning factors for indirect participation are the fear of retaliation from DTSs[31] and the population's distrust of the authorities.[32]

### 2. The State

Matthias Jessen and Nicolai Von Eggers assert that the state is needed to "make power operational, to breathe life and legitimacy into governmental practices of whatever kind."[33] Government practice, society, and the international context operationalize the state, validate its existence, and justify the maintenance of power.[34] In this section, society and government practices are explored from health, ethics, culture, and economic perspectives.

Drug abuse and addiction are traditional sources of concern for states. Although it varies according to the nature and quantity of drugs ingested, intoxication induces the

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[30] Eugen Dimant and Guglielmo Tosato, "Causes and Effects of Corruption: What Has Past Decade's Empirical Research Taught Us? A Survey," *Journal of Economic Surveys* 32, no. 2 (April 2018): 342, https://doi.org/10.1111/joes.12198.

[31] Jorge Fernandez Menendez, *La Nueva Guerra: Del Chapo al Fentanilo: Cómo Cambió todo lo que Creíamos saber sobre el Crimen Organizado,* [The New War: From El Chapo to Fentanyl] (México City: Grijalbo, 2020).

[32] "¿Por qué los mexicanos no denunciamos?," [Why We Mexicans Not Denounce?] *Animal Político* (blog), March 1, 2013, https://www.animalpolitico.com/el-blog-de-causa-en-comun/por-que-los-mexicanos-no-denunciamos/; CdE UNODC, "La Cifra Oscura y las Razones de la No Denuncia en México," [The Dark Figure and the Reasons for Non-Denouncing in Mexico] *Centro de Excelencia UNODC - INEGI* (blog), December 14, 2015, https://cdeunodc.wordpress.com/2015/12/14/la-cifra-oscura-y-los-razones-de-la-no-denuncia-en-mexico/.

[33] Mathias Hein Jessen and Nicolai von Eggers, "Governmentality and Statification: Towards a Foucauldian Theory of the State," *Theory, Culture & Society* 37, no. 1 (January 1, 2020): 66, https://doi.org/10.1177/0263276419849099.

[34] Michael J. Mazarr et al., *Understanding the Current International Order*, Santa Monica, CA: RAND Publications, October 19, 2016, https://www.rand.org/pubs/research_reports/RR1598.html.

addict to dissociate from reality,[35] making consumers a potential risk to themselves and society. Regarding the former, the U.S. Drug Enforcement Administration (DEA) reported that, from 2011 to 2017, drug poisoning deaths "outnumbered deaths by firearms, motor vehicle crashes, suicide, and homicide."[36] As early as 1859, John Stuart Mill questioned law enforcement's role in preventing crimes and accidents related to the sale of drugs.[37] That question was answered by the prohibitionist regime in the international drug control conferences in Shanghai (1909) and The Hague in (1912)[38] and, more recently, in the war on drugs. Concurrently, states have established limits on drug use.[39]

Frédéric Vandenberghe opines that current societies are pluralistic and individualistic and that their subsystems follow laws and codes that bypass morality and ethics.[40] From the utilitarian point of view,[41] states establish standards for the equitable distribution of public policy. A conflict arises when a state's utilitarian perspective confronts an individualistic subsystems' pragmatic egoism.[42] For example, ignoring the public service's morality and ethics, corrupt government officials benefit from the existence of criminal subsystems willing to increase their "welfare" illegally.

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[35] The World Health Organization identifies the clouding of consciousness and the distortions of thinking perception among drugs' effects. World Health Organization, *Youth and Drugs : Report of a WHO Study Group [Meeting Held in Geneva from 22 to 28 October 1971]* (Geneva, Switzerland: World Health Organization, 1973), 25, https://apps.who.int/iris/handle/10665/41030.

[36] DEA's Strategic Intelligence Section, *2019 National Drug Threat Assessment* (Washington, DC: U.S. Department of Justice, 2019), 4–5, https://www.dea.gov/documents/2020/01/30/2019-national-drug-threat-assessment.

[37] Toby Seddon, *A History of Drugs: Drugs and Freedom in the Liberal Age*, 1st edition (Abingdon, England: Routledge-Cavendish, 2010), 43.

[38] Luis Astorga, *El Siglo de las Drogas* [The Century of Drugs] (Barcelona, Spain: Debolsillo, 2016), 22.

[39] See for example Elie Dolgin, "A History of Drugs on the Weight List," *Nature Medicine* 18, no. 6 (June 1, 2012): 843–843, https://doi.org/10.1038/nm0612-843.

[40] Frédéric Vandenberghe, "What's Good about the Good Life? Action Theory, Virtue Ethics and Modern Morality," *Philosophy & Social Criticism*, 2020, 13–14, https://doi.org/10.1177/0191453720948372.

[41] Utilitarians think that the consequences relevant to the morality of their actions increase or decrease the well-being of all those affected, which is consistent with political discourse. See Richard Mervyn Hare, *Objective Prescriptions, and Other Essays* (New York: Clarendon Press, 1999), 156.

[42] Egoism gives moral priority to consequences that increase or diminish the agent or maker of the judgment's welfare. Hare, 156.

The decision of people to collaborate or join a DTS is a cultural matter as well. Margit Tavits affirms that "willingness to engage in corrupt behavior is more likely when one does not define corruption as morally or situationally wrong."[43] The definition of the behavior as "wrong" or "right" rests in part in the system of meanings comprised in culture.[44] Religion, as a part of culture, has been associated in different forms with the drug problem. Elmer Mendoza and Maria Eugenia De la O, for instance, refer to three Mexican figures associated with the drug problem who are broadly worshiped as saints, chiefly by the faithful linked to drug trafficking.[45] Other literature associates religion with events like socio-economic transactions,[46] active participation in the drug trade,[47] and ministers' drug consumption and pronouncements in favor of the practice's social acceptance.[48] The evidence indicates that the church continues to be a shareholder in the problem,[49] and a proven source of influence in close contact with society.

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[43] Margit Tavits, "Why Do People Engage in Corruption? The Case of Estonia," *Social Forces* 88, no. 3 (2010): 1275, http://www.jstor.org/stable/40645890.

[44] Culture is a system of meanings fundamental in decision making. See Lincoln Keiser, *Friend by Day, Enemy by Night: Organized Vengeance in a Kohistani Community*, ed. George Spindler and Louise Spindler (Belmont, CA: Thomson Custom Publishing, 2002), 32–34; and Siamak Naficy, "Of Culture and Cliché: Politics and the Uses (and Abuses) of Anthropology," *Combating Terrorism Exchange* 4, no. 4 (November 1, 2014): 12.

[45] Jesús Malverde and San Nazario (or El Chayo) were drug traffickers turned into popular saints not recognized by the Catholic Church. Together with the fictional character of "La Santa Muerte" [The Holy Dead], these religious figures' cult has also been associated with helplessness, inequality, poverty, and social degradation reaching intermediate points from the southern United States to Colombia. See Élmer Mendoza and María Eugenia de la O Martínez, "La Adjetivación de La Violencia Del Narcotráfico En La Cultura de México: Religión, Arquitectura, Música, Novela y Periodismo," [The Transformation of Drug Trafficking Violence into an Adjective in the Culture of Mexico: Religion, Architecture, Music, Novel, and Journalism] in *Subculturas Del Narcotráfico En América Latina.*, ed. Nelson González-Ortega, 1st ed. (Colombia: Universidad de los Andes, 2015), 201–3, https://doi.org/10.7440/j.ctt1mtz500.9.

[46] Lukasz Kamienski, *Shooting Up: A Short History of Drugs and War*, 1st edition (New York: Oxford University Press, 2016).

[47] Astorga, *El Siglo de las Drogas*, 43–44, 124–25.

[48] Orivaldo Lopes and Janaína Costa, "Drugs and Religion: Contributions to the Debate on the Science–Religion Interface," *Religions* 9, no. 4 (2018): 1, https://doi.org/10.3390/rel9040136.

[49] George W. Grayson, *Mexico: Narco-Violence and a Failed State?* (New Brunswick, NJ: Transaction Publishers, 2010); Pope Francis, "To Participants at the International Conference on 'Drugs and Addictions: An Obstacle to Integral Human Development,'" The Vatican, December 1, 2018, http://www.vatican.va/content/francesco/en/speeches/2018/december/documents/papa-francesco_20181201_conferenza-droga.html.

The Drug Trafficking Structures have filled gaps in subnational economies.[50] One example is that of farmers who are forced to collaborate in coca, marijuana, or poppy cultivation and do not have the option to grow alternative crops.[51] In this situation, DTSs provide security to the peasants and their lands to protect their own interests. These practices increase criminal groups' social bases because they prove to be more effective employers, promoters of social mobility, and security providers than the state. DTSs' social and territorial control, added to gaps in public policies, allow criminals to insert themselves into local political and judicial systems, undermining government credibility. This has led to the idea of DTSs as social orders parallel to states and ruling independently,[52] which threatens the state's political capital.[53]

Private investment is also discouraged in regions under the control of DTSs.[54] Thus, lack of investment reduces formal labor opportunities for local populations, hindering social development and pushing the unemployed population to the informal economy, the illicit economy, or migration. At the same time, the introduction of illicit resources into the national and subnational economies distorts macroeconomic indicators[55] and affects currency stability.[56] Finally, the drug problem also depletes state economies by increasing investment in public policies to fight criminal organizations or to treat addiction.[57]

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[50] Trejo and Ley refer to "subnational regions [as areas] in the developing world where the state is absent and where a wide variety of informal non-state predatory groups, including OCGs [Organized Criminal Groups], have become dominant players." Guillermo Trejo and Sandra Ley, *Votes, Drugs, and Violence: The Political Logic of Criminal Wars in Mexico* (New York: Cambridge University Press, 2020), 35.

[51] Vanda Felbab-Brown, "The Threat of Illicit Economies and the Complex Relations with State and Society," in *Organized Crime and Illicit Trade: How to Respond to This Strategic Challenge in Old and New Domains*, ed. Virginia Comolli (London, England: Springer, 2018), 5.

[52] Trejo and Ley, *Votes, Drugs, and Violence*, 35.

[53] Felbab-Brown, "The Threat of Illicit Economies," 3.

[54] GCDP, "Regulation – The Responsible Control of Drugs," *The Global Commission on Drug Policy* (blog), September 11, 2018, 19, https://www.globalcommissionondrugs.org/reports/regulation-the-responsible-control-of-drugs.

[55] GCDP, 19.

[56] Felbab-Brown, "The Threat of Illicit Economies," 5.

[57] Trejo and Ley, *Votes, Drugs, and Violence*, 41.

### 3. The International System

The analysis of the international system, defined as "the comprehensive global context in which states operate,"[58] is an extension of the study of the state and the individual.[59] The international order is manifested through various mechanisms—such as international organizations and trade treaties.[60] It is through those mechanisms that states display their willingness to share values, interests, norms, and institutions seeking common objectives such as preserving life, freedom, and the limitation of violence.[61]

For example, the Global Commission on Drug Policy (GCDP) documents that, in 2017, the United States suffered an opioid overdose epidemic that reduced the national average life expectancy by three years.[62] This crisis was attributed to an aggressive marketing campaign by pharmaceutical companies that led health service providers to increase prescriptions for opioid painkillers without any regulation. Thus, the GCDP concluded that Mexican drug trafficking organizations were ultimately satisfying the market for fentanyl and heroin in the United States. In essence, a market issue in the United States led to an impact on public health in the same country and influenced the strengthening of Mexican criminal structures that threaten U.S. national security and Mexico's public security.

## C. ADVERSARIAL INNOVATION IN THE DRUG PROBLEM

Multiple studies review how criminal organizations react to authorities' actions in a direct cause-and-effect relationship. Nieto-Gomez, by contrast, proposes a systemic vision, and approaches the subject crosswise and longitudinally from the stigmergy point

58 Michael J. Mazarr et al., *Understanding the Current International Order: Building a Sustainable International Order Series* (Santa Monica, CA: RAND Corporation, The, 2016), 8.

59 Waltz and Walt, *Man, the State, and War*, 160.

60 Mazarr et al., *Understanding the Current International Order*, 10–12.

61 Arie Marcelo Kacowicz, *The Impact of Norms in International Society: The Latin American Experience, 1881–2001* (Notre Dame, IN: University of Notre Dame Press, 2005), 45–46.

62 GCDP, "Enforcement of Drug Laws: Refocusing on Organized Crime Elites," *The Global Commission on Drug Policy* (blog), May 6, 2020, 27, https://www.globalcommissionondrugs.org/reports/enforcement-of-drug-laws.

of view.[63] His study describes how criminal groups' resilience has been forged in a succession of adversarial innovations forced by the WD's punitive environment. Nieto-Gomez argues that an authority's' successful policy against the drug supply chain leaves signs that the criminal group perceives as an invitation to evolve through a trial and error process until the supply chain is reestablished. Hence, this section reviews the individuals, states, and international system's ability to innovate in response to the successful actions of DTSs.

As stated before, the individual can be involved in the drug problem as a consumer or as a participant in the supply chain. Assuming that the individual is rational and free to choose, he or she presents a stigmergic pattern strengthening his or her resilience by deciding not to consume drugs, despite having them readily available. The statistics indicate that, in global terms, a growing number of consumers is unable to develop a stigmergic pattern due to the stimulation of drug availability.[64] In the WD environment, this reflection could favor the classic measures that try to cut the drug supply; however, an alternative or complementary focus would be on the factors that increase individuals' well-being.

In the second case—joining the drug supply chain—the resilient individual does not need to be employed by criminal groups to achieve his or her well-being. Yet, DTSs are successful in offering themselves as the best, only, or forced job opportunity for the individual. In this case, the prevalence or growth of criminal organizations is an indication that they remain strong competitors in the occupational market. While this idea could justify repressive measures against criminal organizations, it also implies the need for the economic sector to offer the individual alternative occupational options.

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[63] Nieto-Gomez affirms that the term "stygmergy" was coined by Pierre-Paul Grasse during his studies on indirect stimulus-response patterns in termites. Nieto-Gomez adds that "As in the case of termites, stigmergic patterns influence human behavior." See Rodrigo Nieto-Gomez, "Stigmergy at the Edge: Adversarial Stigmergy in the War on Drugs," *Cognitive Systems Research*, Special Issue of Cognitive Systems Research – Human-Human Stigmergy, 38 (June 1, 2016): 31–40, https://doi.org/10.1016/j.cogsys.2015.12.005.

[64] United Nations Office on Drugs and Crime, *UN World Drug Report 2020: Executive Summary*, vol. 1 (Vienna, Austria: United Nations Publication, 2020), //wdr.unodc.org/wdr2020/en/exsum.html.

The state's resilience can be measured by its ability to strengthen and preserve its institutions and ensure society's general well-being.[65] The drug problem, recognized as a system of systems, is successful every time one of its components manages to avoid the state's efforts to limit it. In the prohibitionist regime, most states demonstrated an ineffective stigmergic pattern by unsuccessfully keeping repressive actions at the center of their policies against the drug problem. Besides, many states have not provided their respective societies with the conditions and opportunities to generate alternatives to drug use and integration into criminal groups. Such states have not yet sufficiently strengthened their resilience to the innovative actions by DTS elements of the drug problem as a system.

Philippe Bourbeau defines resilience in the international system as the adjustment process adopted jointly by states to face endogenous or exogenous shocks.[66] The drug problem system's success would be characterized by its ability to circumvent international order mechanisms while maintaining continuity in its characteristic set of behaviors, and by the DTS's ability to operate by taking advantage of the states' differences.[67] The evidence demonstrates that the international order has responded inadequately to the drug problem to the detriment of the former's resilience. An example is the drug classification disparity among UNODC,[68] DEA,[69] and Mexico,[70] which hampers the practical

65 Krüger argues that "governing complexity sits uneasily with a withdrawing neoliberal "nightwatchman state" but rather requires its active engagement in order to keep structures open, to facilitate participation, to subvert strategic selection biases, to grant capacities, and to reveal and reduce societal impairments as the preconditions for building resilience." See Marco Krüger, "Building Instead of Imposing Resilience: Revisiting the Relationship Between Resilience and the State," *International Political Sociology* 13, no. 1 (2019): 65, https://doi.org/10.1093/ips/oly025.

66 Philippe Bourbeau, "Resilience and International Politics: Premises, Debates, Agenda," *International Studies Review* 17, no. 3 (2015): 382, https://doi.org/10.1111/misr.12226.

67 GCDP, "Enforcement of Drug Laws," 18.

68 United Nations Office on Drugs and Crime, *Terminology and Information on Drugs*, 3rd ed. (New York: United Nations, n.d.), vii–viii.

69 U.S. Drug Enforcement Administration, *Drugs of Abuse: A DEA Resource Guide* (Washington, DC: U.S. Department of Justice, 2017), https://www.dea.gov/sites/default/files/drug_of_abuse.pdf.

70 Mexico Government, Secretariat of Government, "Ley General de Salud [Health Law]," February 19, 2021, Articles 234, 245, http://www.ordenjuridico.gob.mx/Documentos/Federal/html/wo11037.html.

alignment of international legal efforts against the drug problem, thereby generating social and economic problems.[71]

## D. BIASES AND MISCONCEPTIONS

Toby Seddon states that "The ways in which we 'imagine' problems are bound up with the ways in which we govern them."[72] The declaration of drugs as public enemy number one in the 1970s brought to the fore the drug control regime that permeated most Western states and international organizations, leading to the WD's punitive policies that came into vogue.[73] So, for more than half a century, a government culture has been created around WD, generating a series of inferential rules—heuristics—that decision makers tend to resort to when faced with the problem.[74] The latter reveals that the way in which policymakers imagine the drug problem is bounded.[75]

The number of issues to be addressed and the rush for a short-term result overwhelm most decision makers, who resort to solutions that previous administrations have unsuccessfully practiced. In this process, the availability heuristic is apparent since the formulas that decision makers implement are their references at hand.[76] The solutions

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71 GCDP, "Classification of Psychoactive Substances: When Science Was Left Behind," *The Global Commission on Drug Policy* (blog), June 25, 2019, 4, https://www.globalcommissionondrugs.org/reports/classification-psychoactive-substances.

72 Seddon, *A History of Drugs*, 133.

73 The drug prohibition regime "is enshrined in United Nations Conventions and its origins can be traced back to an international conference on the opium trade held in Shanghai in 1909." See Seddon, 7.

74 From the anthropological point of view, culture forms a system of interacting meanings that influence decision making. See Lincoln Keiser, *Friend by Day, Enemy by Night: Organized Vengeance in a Kohistani Community*, ed. George Spindler and Louise Spindler (Belmont, CA: Thomson Custom Publishing, 2002); and Siamak Naficy, "Of Culture and Cliché: Politics and the Uses (and Abuses) of Anthropology," *Combating Terrorism Exchange* 4, no. 4 (November 1, 2014): 12; Cited by Barnes, Simon argues that heuristics "are employed to reduce difficult mental tasks to simpler ones." Barnes adds that "Although valid in some circumstances, they [heuristics] can lead to large and persistent biases with serious implications." James H. Barnes, "Cognitive Biases and Their Impact on Strategic Planning," *Strategic Management Journal* 5, no. 2 (1984): 129–37, https://doi.org/10.1002/smj.4250050204.

75 Sterman states that, resulting from limitations of knowledge, cognition, and time, bounded rationality surges because individuals find themselves overwhelmed when managing complex systems. See Sterman, *Business Dynamics*, 598.

76 Amos Tversky and Daniel Kahneman, "Judgement under Uncertainty: Heuristics and Biases," *The Journal of the Operational Research Society* 34, no. 3 (1983): 1124, https://doi.org/10.2307/2581328.

put into practice are retrievable instances that represent the most recent or ongoing example brought to mind.[77]

On the other hand, the cultural context of the WD has also generated adjustment and anchoring heuristics.[78] In an overconfidence bias,[79] initially, the decision maker expects "success" as the outcome of the policy. This situation leads to ignoring the drug problem's disjunctive events and underestimating the possibility of the policy's failure.[80] In the same context, current policies have received insufficient or no adjustments in light of the evidence of their limited results.[81] Thus, the decision maker tends to maintain the initial high expectation and defends the decision made because it is fashionable and resources have been invested in it. This practice has frequently led to a worsening of the problem, which is recognized, for example, by former heads of state and senior officials who make up the GCDP commissioner body.[82]

Within the drug control regime framework, the drugs' "evil" nature has been transmitted indiscriminately to those who trade them and those who consume them, regardless of their potential non-risk to society.[83] In a slippery slope fallacy, "too many policymakers reinforce the idea that all people who use drugs are 'amoral addicts,' and all

77 Tversky and Kahneman, 1127.

78 In seeking solutions, people tend to adjust initial values generally given in the problems' formulation. Anchoring refers to the fact that often the adjustments are biased toward the initial values, typically falling short to yield satisfactory solutions. See Tversky and Kahneman, 1128.

79 Barnes asserts that "It [overconfidence] indicates that we often do not realize how little we know and how much additional information we need." See Barnes, "Cognitive Biases and Their Impact on Strategic Planning," 133.

80 The term "disjunctive events" refer to those that (apparently) do not have any relation. In complex systems, "Even when the likelihood of failure in each [disjointed] component is slight, the probability of an overall failure can be high." See Tversky and Kahneman, "Judgement under Uncertainty," 1128–29.

81 Tversky and Kahneman, 1128.

82 On GCDP's website, in its video presentation, several of its commissioners acknowledge that, even in their administrations as heads of state, the punitive efforts against the drug problem failed or were counterproductive. "The Global Commission on Drug Policy," The Global Commission on Drug Policy, accessed February 22, 2021, https://www.globalcommissionondrugs.org/.

83 For Seddon, "From the latter half of the 1960s [Neo-liberalism], the idea of certain drug users as threats or sources of risk to the wider community has become increasingly dominant and drug policy has concentrated on developing strategies and interventions." Seddon, *A History of Drugs*, 97.

those involved in drug markets are ruthless criminal masterminds."[84] The heuristic applied is that of representativeness since the control regime automatically categorizes the addict and the drug supply chain members.[85] This is one reason to which various studies attribute mass incarceration and the marginalization of addicted people.[86] Moreover, the cognitive or judgmental bias of insensitivity to sample size contributes to a misunderstanding of data.[87] For example, based on UNODC's figures, the GCDP affirms that "the significant majority of drug consumption is essentially non-problematic."[88] As an alternative, the GCDP has proposed establishing, through scientific criteria, different degrees of disease or risk to society posed by addicts and criminals.[89] The final objective would be to determine treatments for addicts and penalties for offenders proportional to those degrees of illness or risk.

The drug control regime has also created misconceptions that can distort policies directed at the drug problem. For example, there is a narrative that the war on drugs is a zero-sum confrontation between authorities and individuals associated with the drug supply chain and, by extension, between authorities and addicts.[90] The idea that the drug control regime is under an acceptable rule-of-law culture automatically places criminals and drug addicts in the position of antagonists. Siamak Naficy attributes this phenomenon

84 GCDP, "The War on Drugs," *The Global Commission on Drug Policy* (blog), October 6, 2017, 13, https://www.globalcommissionondrugs.org/reports/the-war-on-drugs.

85 Representativeness is the general tendency to determine an event's probability as high or low based on the resemblance of that event with some belief or stereotype already existing in our minds. Tversky and Kahneman affirm that "This approach to the judgment of probability leads to serious errors, because similarity, or representativeness, is not influenced by several factors that should affect judgments of probability." See Tversky and Kahneman, "Judgement under Uncertainty," 1124.

86 Tversky and Kahneman, 1124.

87 Tversky and Kahneman, 1125.

88 GCDP, "Taking Control: Pathways to Drug Policies That Work.," *The Global Commission on Drug Policy* (blog), March 4, 2016, 11, https://www.globalcommissionondrugs.org/reports/taking-control-pathways-to-drug-policies-that-work.

89 GCDP, "Taking Control."

90 "In the scholarly literature, OCGs [Organized Criminal Groups] are considered to be non-state actors. Because most criminologists implicitly accept Weber's claim that the modern state aims to exercise the monopoly of force within given territory, criminal studies commonly assume that OCGs and the state have a zero-sum relation: whatever one organization wins is at the cost of the rival organization." Trejo and Ley, *Votes, Drugs, and Violence*, 34.

in part to the fact that "the 'otherness' of the outsider, especially the enemy, serves as a marker we use to define ourselves and establish our own identities."[91] In the drug problem, by describing the enemy in his preconceived illicit culture, the authorities confirm their identity as government subsystems of the state defending legality. This is used to justify punitive policies to neutralize criminals and confine addicts. This cognitively or judgmentally biased view of criminals and drug addicts prevents the exploration and attention of the underlying causes of crime and drug addiction.

Finally, there is the optimistic view of achieving a drug-free world. This idea is compatible with the WD culture's punitive policies, because eliminating drugs would be like destroying an enemy of the state for soldiers. However, the WD's systemic effects have been unpredictable, uncontrollable, and fatal in the worst of cases. Antonio Maria Costa, former executive director of UNODC, put it in these terms: "Is a drugs free world attainable? Probably not. Is it desirable? Most certainly, yes. Therefore, I see this slogan as an aspirational goal, and not as an operational target—in the same way that we all aspire to eliminate poverty, hunger, illiteracy, diseases, even wars."[92]

91 Naficy, "Of Culture and Cliché," 3.

92 Seddon, A History of Drugs, 2.

# III. METHODOLOGY

This thesis uses qualitative-exploratory analysis to address the drug problem holistically. The first step introduced concepts related to system dynamics, depicted the drug problem in general terms from the perspective of classical realism's three levels of study, and used the theory of resilience to contrast the adversarial relation between, on the one hand, the drug problem components and, on the other, the individual, the state, and the international system. This step also detailed the biases and misconceptions conditioning states' classical approaches to address the problem. The objective of the first step was to broaden the reader's vision of the drug problem through the systemic reference and to point out the factors that have driven the classic punitive strategies of the WD. From the new perspective, the second step explores the case studies of Brazil, Peru, Switzerland, and Mexico to illuminate the problem presented and how it was dealt with in different particular contexts. In the third step, the systems theory is used to specifically highlight the existing relationships between the various components of the drug problem in Mexico as a system. Causal loop diagrams depict those relationships, allowing us to identify potential leverage points to recommend actions that more effectively address the systemic problem.

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# IV. CASE STUDIES

In this chapter, four case studies are provided as examples of different approaches to address the drug problem. The selected cases cover a wide spectrum of the drug problem by citing countries with various geographic and socio-economic conditions. The first case involves the Pacifying Police Units (UPP) of Rio de Janeiro in Brazil, which operate in an urban environment. The second case focuses on the "Miracle of San Martin," set in a rural Peruvian environment impacted by guerrilla groups. The third case examines Switzerland's four-pillar policy in dealing with its national problem of heroin consumption. Finally, Mexico's case is reviewed, where a combination of the problems observed in the three previous cases is found. These case studies offer a plentiful source of feedback in regards to the drug problem, which proves helpful later in finding leverage points when narrowing the focus on the causal loop diagram of Mexico's drug problem.

## A. BRAZIL: PACIFYING POLICE UNITS

Since the late 1960s, Brazil has experienced sustained macroeconomic growth. By 2009, Brazil was recognized as one of five major emerging economies that also included Russia, India, China, and South Africa (the BRICS group), and in 2012, the country ranked sixth among the global economies.[93] In 2001–2014, Brazil reduced poverty and extreme poverty rates by around ten percentage points. Along with this economic growth, from the early 2000s on, Brazil became the main shipping point for maritime cargo to markets in Africa and Europe, which was accompanied by an increase in Colombian cocaine trafficking to markets in Spain, France, and Italy.[94] Among other international massive

[93] Enrique Vasquez, "The Paradox Between Good Economic Management And Social Unrest In Brazil: 2000 - 2015," *Varazdin: Varazdin Development and Entrepreneurship Agency (VADEA)*, 2017, 1–23, http://libproxy.nps.edu/login?url=https://www-proquest-com.libproxy.nps.edu/conference-papers-proceedings/paradox-between-good-economic-management-social/docview/2070397265/se-2?accountid=12702.

[94] Paula Miraglia, "Drugs and Drug Trafficking in Brazil: Trends and Policies," *Center for 21st Century Security and Intelligence Latin America Initiative*, 2015, 3, http://www. brookings. edu/~/media/ Research/Files/Papers/2015/04/global-drug policy/Miraglia–Brazil-final. pdf; United Nations Office on Drugs and Crime, "Drug Supply," in *World Drug Report 2020*, UNODC Research, vol. 3 (Vienna, Austria: United Nations Publication, 2020), 31, 34, //wdr.unodc.org/wdr2020/en/drug-supply.html.

events, between 2006 and 2016, Rio de Janeiro hosted the 2007 Pan-American Games and the Summer Olympics.[95] The economic and political interests that accompanied these international events forced the government of Rio de Janeiro to seek solutions to reduce violence. After 2008, violence in Rio de Janeiro was eventually tamped down by the UPPs.[96] However, in 2016, violence soared again, and the UPP program was strongly criticized.[97] This section reviews the events leading to the implementation of the UPPs and the evolution and results of this program.

Rio de Janeiro and Sao Paulo are the primary centers of the nation's illicit drug use, which currently stigmatizes Brazil as the number one crack-cocaine consumer globally and the largest market of cocaine in South America.[98] Some studies and journalistic pieces attribute Brazilian drug use to a plentiful supply, low cost, and commercial agreements between criminal organizations.[99] In Rio de Janeiro, according to a 2010 demographic census, 763 slums—*favelas*—were registered, with a population of almost 1.4 million inhabitants, representing 22% of the total population of the metropolis.[100] Since the 1980s,

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[95] Ignacio Cano and Eduardo Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," *Police Practice & Research* 17, no. 4 (August 2016): 369, https://doi.org/10.1080/15614263.2016.1175709.

[96] Robert Muggah, "Caught between Police and Gangs, Rio de Janeiro Residents Are Dying in the Line of Fire," *The Conversation* (blog), September 4, 2017, http://theconversation.com/caught-between-police-and-gangs-rio-de-janeiro-residents-are-dying-in-the-line-of-fire-83016.

[97] Cano and Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," 371; Robert Muggah and Ilona Szabó De Carvalho, "Fear and Backsliding in Rio," *The New York Times*, April 15, 2014, sec. Opinion, https://www.nytimes.com/2014/04/16/opinion/fear-and-backsliding-in-rio.html.

[98] United Nations Office on Drugs and Crime, "Socioeconomic Characteristics and Drug Use Disorders," in *World Drug Report 2020*, UNODC Research, vol. 5 (Vienna, Austria: United Nations Publication, 2020), 34, //wdr.unodc.org/wdr2020/en/socioeconomic.html; United Nations Office on Drugs and Crime, "Drug Use and Health Consequences," in *World Drug Report 2020*, UNODC Research, vol. 2 (Vienna, Austria: United Nations Publication, 2020), 27, //wdr.unodc.org/wdr2020/en/drug-use-health.html; Anabel Hernandez, "Brasil, el Segundo Mayor Consumidor de Cocaína del Mundo, y Uno de los Más Violentos (Parte I)," [Brazil, the Second Largest Cocaine User in the World, and One of the Most Violent (Part I)] *Deutsche Welle* (blog), August 26, 2019, https://www.dw.com/es/brasil-el-segundo-mayor-consumidor-de-coca%C3%ADna-del-mundo-y-uno-de-los-m%C3%A1s-violentos-parte-i/a-50169426.

[99] Miraglia, "Drugs and Drug Trafficking in Brazil," 3–4; Hernandez, "Brasil, Parte I."

[100] Giuseppe Ricotta, "En el Territorio del Enemigo: Las Unidades de Policía de Pacificación (UPP) En Una Favela de Río de Janeiro, Brasil," [In the Territory of the Enemy: Pacifying Police Units (UPP) in a Favela in Rio de Janeiro, Brazil] *Antípoda : Revista de Antropología y Arqueología*, no. 29 (2017): 65, https://doi.org/10.7440/antipoda29.2017.03.

the vacuum in governmental leadership and the need for an alternative social order in this population led to the emergence of criminal gangs that took control.[101]

The three prominent DTSs or "commandos" entrenched in Rio de Janeiro are the "Vermelho [red]," "Tercero [third]," and "amigos de los amigos [friends of friends]."[102] Within the *favelas*, these DTSs recruit young people seeking status, protection, and a decent salary, among other material benefits.[103] In general, the commandos are better security and job providers than the government, even though the salaries they offer are not much higher than salaries for equivalent levels of work in the legal labor market.[104]

Since the middle of the 20th century, various non-governmental institutions have tried to integrate the favelas into the general population.[105] However, the conflicting traditional interests of different social groups, DTSs, and politicians have hampered this objective.[106] The authorities' strategies in Rio de Janeiro have gone through three stages: 1) the original WD's paradigm; 2) the emergence of militias; and 3) the introduction of the Pacifying Police Units (UPP) program.[107]

The WD's prohibitionist strategy was well suited to the Military Police's repressive nature, which automatically perceived inhabitants of the favelas' as enemies of the State.[108] Ignacio Cano and Eduardo Ribeiro's research reveals that the police temporarily

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101 Vasquez, "The Paradox," 16; GCDP, "Enforcement of Drug Laws," 15.

102 Kees Koonings and Sjoerd Veenstra, "Exclusión Social, Actores Armados y Violencia Urbana en Río de Janeiro," [Social Exclusion, Armed Actors and Urban Violence in Rio de Janeiro] *Foro Internacional* 47, no. 3 (189) (2007): 616–36.

103 World Health Organization, *Understanding Substance Use Among Street Children*, Module 3, Working with Street Children Series, (Geneva, Switzerland: WHO, 2010), 24; Koonings and Veenstra, "Exclusión Social, Actores Armados y Violencia Urbana en Río de Janeiro," 633.

104 Cano and Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," 366; GCDP, "Enforcement of Drug Laws," 15.

105 Vasquez, "The Paradox," 15.

106 Koonings and Veenstra, "Exclusión Social, Actores Armados y Violencia Urbana en Río de Janeiro," 634; Enrique Desmond Arias, "Trouble En Route: Drug Trafficking and Clientelism in Rio de Janeiro Shantytowns," *Qualitative Sociology* 29, no. 4 (2006): 427–45, https://doi.org/10.1007/s11133-006-9033-x.

107 Cano and Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," 364.

108 Ricotta, "En El Territorio Del Enemigo," 66.

occupied the favelas, but crime returned to its original level once the police were withdrawn. This cycle was then repeated.[109] The same study highlights the lack of crime prevention and investigation measures during this stage and identifies some negative consequences related to this neglect, such as corruption, deterioration of the police image, fear and distrust toward the authorities, and diversification of crime.

In 2006, the vacuum in government control and the ineffectiveness of punitive policies promoted the proliferation of militia groups that sought to sell security services to the local population.[110] As a result, militias violently seized control of some favelas from the commandos, and, as of 2008, militias occupied 36% of the favelas.[111] Some studies argue that the militias were composed of corrupt elements from the security forces with access to police intelligence and better internal organization than the commandos.[112] While some authorities initially supported the militias,[113] their abuses amounted to organized crime, and open support for them ceased, forcing the militias to lower their profile. But they maintained territorial control.[114]

In 2006, the Drug Law was enacted in Brazil. Paula Miraglia explains that the law generated the expectation that there would be a reduction in the number of people imprisoned.[115] Nevertheless, Miraglia concludes that the law's vague language concerning

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109 Cano and Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," 366.

110 Cano and Ribeiro, 367.

111 Cano and Ribeiro, 367.

112 Hernandez, "Brasil, Parte I"; Anabel Hernandez, "Brasil y las Peligrosas 'Milicias' (Parte II)," [Brazil and the Dangerous 'Militias' (Part II)] *Deutsche Welle* (blog), September 2, 2019, https://www.dw.com/es/brasil-y-las-peligrosas-milicias-parte-ii/a-50263081; Ricotta, "En El Territorio Del Enemigo," 66; Moritz Schuberth, "Brazilian Peacekeeping? Counterinsurgency and Police Reform in Port-Au-Prince and Rio de Janeiro," *International Peacekeeping* 26, no. 4 (2019): 503, https://doi.org/10.1080/13533312.2019.1623675; Cano and Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," 367.

113 The militias date from the time of the dictatorship, and some members of these groups have obtained popularly elected positions. See Hernandez, "Brasil, Parte II."

114 Cano and Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," 368.

115 Miraglia, "Drugs and Drug Trafficking in Brazil," 8.

such a reduction and the resistance to change in the judicial and security cultures contributed to the Drug Law having the opposite effect.[116]

Giuseppe Ricotta argues that the UPPs were introduced as a priority intervention on urban violence as part of a series of urban renewal and transformation processes.[117] Furthermore, he affirms that Rio de Janeiro ultimately sought to consolidate itself as a modern and functional city in light of the "mega-events" that it hosted between 2007 (XV Pan American Games) and 2016 (XXXI edition of the Olympic Games). Consequently, the UPP project had strong support from economic interests, eliminating the possibility of encountering resistance from the conservative political sector.[118]

The original objectives of the UPPs were to regain territorial control of the favelas for the state, reduce violence, increase public and private investment, and improve living conditions.[119] The permanent installation of the UPPs was preceded by an armed invasion of the favelas that resulted in the arrest of drug dealers and the seizure of weapons, followed by the deployment of forces to secure the area and monitor social activities. The first UPP was established in 2008, and by 2013 there were already UPPs in 38 favelas. However, UPPs were positioned in the favelas under control by criminal gangs but not in the favelas under control by the militias.[120] The new policy generated optimism in the UN and the World Bank.[121] Between 2009 and 2012, the UPPs helped to reduce the homicide rate by 65%, but the model deteriorated after the 2016 Olympics, and crime spiked again in the

116 Between 2007 and 2012, the number of people incarcerated for drug trafficking in Brazil increased by 123%. See Miraglia, 8.

117 Ricotta, "En El Territorio Del Enemigo," 65.

118 Cano and Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," 369.

119 Cano and Ribeiro, 370; Miraglia states that, "According to official documents, the main objectives of the new policy were to (1) 'consolidate state control over communities under strong influence of armed crime'; and (2) 'reestablish peace and tranquility in local communities, both essential elements to the full exercise of citizenship, as well as to ensure their social and economic development.'" Miraglia, "Drugs and Drug Trafficking in Brazil," 10.

120 Cano and Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," 370.

121 Ricotta, "En El Territorio Del Enemigo," 68–69.

favelas of Rio de Janeiro.[122] A poll carried out in 2014 revealed that UPPs' popular support declined from 60% in 2012 to 41% in the survey year.[123]

Several studies have questioned this program, equating it to counterinsurgency operations in the context of civil war without the intention to reinstate power over that of criminal organizations.[124] Michael Wolff finds the ubiquitous poverty and the state's ineffective presence aggravated by a lack of material resources and the police's inability to supplant the functions of social and economic control of local criminal organizations.[125] Finally, Elizabeth Leeds affirms that the UPPs have not been implemented as a single model to guide the actions of the police as an institution.[126] On the one hand, purely punitive operations are maintained in the areas under the control of criminal organizations. On the other hand, the UPPs promote social rapprochement in nearby favelas. This has failed to demonstrate a policing philosophy that suppresses the WD culture.

## B. PERU: THE SAN MARTIN MIRACLE

Peru has traditionally been one of the major coca leaf producers in the world since the cocaine boom in the illicit drug market in the 1970s.[127] Of the total coca plantations in Peru, in 2004, the UNODC estimated that 34% were in the Upper Huallaga Valley (UHV) region,[128] an environment complicated by the presence of subversive groups in addition

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122 Muggah, "Caught between Police and Gangs."

123 Lloyd Belton, "Rio Olympics: Prospects for Next Round of Favela Occupations," *InSight Crime* (blog), February 9, 2016, https://insightcrime.org/news/analysis/rio-olympics-prospects-for-next-round-favela-occupations/.

124 Cano and Ribeiro, "Old Strategies and New Approaches towards Policing Drug Markets in Rio de Janeiro," 371; Schuberth, "Brazilian Peacekeeping?"; Michael Wolff, "Community Policing the Brazilian Favela," *Noria Research* (blog), June 15, 2018, https://noria-research.com/community-policing-the-brazilian-favela/.

125 Wolff, "Community Policing the Brazilian Favela."

126 Elizabeth Leeds, "What Can Be Learned from Brazil's 'Pacification' Police Model?," *Washington Office on Latin America* (blog), accessed March 16, 2021, https://www.wola.org/analysis/what-can-be-learned-from-brazils-pacification-police-model/.

127 Pablo G. Dreyfus, "When All the Evils Come Together: Cocaine, Corruption, and Shining Path in Peru's Upper Huallaga Valley, 1980 to 1995," *Journal of Contemporary Criminal Justice* 15, no. 4 (November 1, 1999): 374, https://doi.org/10.1177/1043986299015004004.

128 United Nations Office on Drugs and Crime, "Peru: Coca Cultivation Survey," 2005, www.unodc.org/unodc/en/crop_monitoring.html.

to the classic DTSs. In one department of the UHV, however, the confluence of several factors led to the eradication of coca leaf crops in what has been known as "The San Martin Miracle."

At the beginning of the 1960s, the Peruvian government began to populate (through incentivized relocation) the UHV in the departments of San Martin and Huanuco to alleviate migratory pressure in the coastal cities and take advantage of the agricultural potential of the area.[129] The project had international funding under the U.S. Alliance for Progress program.[130] Hernan Manrique notes that although the area was populated, the project failed due to several factors.[131] The first of them was that the population did not receive the basic services required such as health, education, and security. The second factor was the centralized imposition of agricultural activities and cooperative mechanisms, which did not address local interests and concerns and were therefore not accepted by the settlers. The third was the low profitability of the crops due to significant price fluctuations and the lack of markets. Eventually, direct investment in the region was cut. In the mid-1970s, the ecological balance in the area deteriorated due to poor urban and agricultural planning.[132] Other unintended consequences from this project were local indebtedness and a culture of dependence on the state.[133]

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129 Steven L. Taylor, "Coca's Gone: Of Might and Right in the Huallaga Post-Boom - by Kernaghan, Richard," *Bulletin of Latin American Research* 30, no. 3 (2011): 7–8, https://doi.org/10.1111/j.1470-9856.2011.00552.x.

130 Maritza Paredes and Hernan Manrique, "Ideas of Modernization and Territorial Transformation in the Rise of Coca: The Case of the Upper Huallaga Valley, Peru," In *The Origins of Cocaine: Colonization and Failed Development in the Amazon Andes*, ed. Paul Gootenberg and Liliana Davalos (New York: Routledge, 2018), 61.

131 Hernan Manrique, "Auge y Caída Del Tráfico Ilícito de Drogas En La Selva Alta Peruana: Un Análisis Desde El Enfoque de Relaciones Estado Sociedad," [Rise and Fall of Illicit Drug Trafficking in the Peruvian High Jungle: An Analysis from the State-Society Relations Approach] *Debates En Sociología*, January 30, 2020, 136–38, https://doi.org/10.18800/debatesensociologia.201802.005.

132 Manrique, 136–38.

133 Paredes and Manrique, "Ideas of Modernization and Territorial Transformation in the Rise of Coca," 73–75.

During this period, the settlers discovered the advantages of the coca leaf's cultivation.[134] The coca plant supports three to six harvests per year, yielding profits at ten times the earnings from cocoa cultivation and 91 times that of rice. An additional benefit was that the drug traffickers collected the coca leaf directly from the field, saving farmers the traditional cost of transporting their products to market for sale. These factors started the cocaine boom and promoted the emergence of representatives of the coca-grower trade unions. Guided by the United Nations (UN) and prohibitionist policies, the Peruvian government's response between 1978 and 1989 was police repression intended to eliminate coca and cocaine production.[135] In parallel, an organization was created to promote alternative agricultural development; however, this organization lacked coordination with the police, driving inefficiencies and distancing the population from the authorities.

The Shining Path (SP) guerrilla movement also appeared between 1983 and 1984. According to Vanda Felbab-Brown, SP initially prohibited coca leaf trafficking, which was not well received by the local population, but SP understood the peasants' dependence on the coca trade for subsistence.[136] By 1986 the guerrilla group controlled the region and participated in all phases of the coca market, expanding its social base and its criminal, economic, and political capital. SP's strength imposed on the authorities and drug traffickers, and led to an attempt by the Tupac Amaru Movement to penetrate its territory in the same activities.

Perhaps the SP's influence reached its peak in 1989 when the government's use of herbicides to eradicate coca plants provoked the anger of traffickers and coca growers alike, which the guerrilla group used to motivate them to attack a police post. According to Felbab-Brown, the episode resulted in "one of the Peruvian government's worst defeats in the UHV."[137] In this period, the U.S. Department of State and the Department of

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[134] Vanda Felbab-Brown, *Shooting Up: Counterinsurgency and the War on Drugs* (Washington, DC: Brookings Institution Press, 2010).

[135] Manrique, "Auge y Caída Del Tráfico Ilícito de Drogas En La Selva Alta Peruana," 140.

[136] Felbab-Brown, *Shooting Up*, 41–49; Besides, SP had difficulty establishing itself where strong organizations such as the church responded to some of the local population's needs. See David Scott Palmer, *The Shining Path of Peru* (New York: St. Martin's Press, 1992), 41, 22.

[137] Felbab-Brown, *Shooting Up*.

Defense and the Drug Enforcement Agency actively participated with the Peruvian authorities in eradication operations and law enforcement against drug trafficking activities.[138] In 1988, the United States built a base in the conflict zone, installing an airfield, helicopter maintenance facilities, and housing.[139]

Pablo Dreyfus has mentioned that, in the decade of the 1980s, there were two periods in which the UHV was declared an emergency zone, resulting in occupation by strong military contingents.[140] During these periods, the military commanders focused on fighting the guerrilla movement and restricted their eradication and interdiction activities, while promoting rural infrastructure construction. These measures regained the peasants' sympathy for and collaboration with the government to a certain extent, leading to the temporary withdrawal of social and political capital and territory from SP. Nevertheless, this strategy was accompanied by brutal attacks against the guerrilla group, often ignoring human rights, and unintentionally facilitated the development of drug trafficking groups. Moreover, Dreyfus documents that the military forces received bribes from drug traffickers in exchange for protection against the police forces deployed in the UHV.[141]

Felbab-Brown identifies several factors that locally contributed to the elimination of the SP guerrilla group.[142] The military authorities openly denied any support to the police in eradication activities, which eliminated the peasants' dependence on SP to protect their plantations since the coca growers and drug traffickers were enough to do so. As a result, the SP resorted to repressive practices to maintain the population's support, which further resulted in its loss of political capital. The people reacted by creating self-defense units that provided intelligence information to the counter-guerrilla military forces. Finally, in a joint intelligence effort between the U.S. Central Intelligence Agency (CIA) and the

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[138] United States General Accounting Office, *Drug Control: U.S. Antidrug Efforts in Peru's Upper Huallaga Valley: Report to Congressional Requesters* (Washington, DC: The Office, 1994), 3–4.

[139] United States General Accounting Office, 3.

[140] Dreyfus, "When All the Evils Come Together," 383–86.

[141] Dreyfus, 388.

[142] Felbab-Brown, *Shooting Up*, 53–60.

Peruvian government, in 1992, SP's leader was captured, essentially putting an end to the movement at the national level.

The Peruvian policy to address the drug problem in UHV changed in 1989, laying the foundations for the so-called "Miracle of San Martin." Manrique describes the factors that came together in addressing the problem.[143] On the operational side, the coca growers were no longer the target of state intervention, with the main effort concentrated on the guerrillas.[144] On the one hand, the SP leader's capture and the local intelligence information provided by the self-defense groups accelerated the subversive units' dismantling. On the other hand, an air interdiction strategy was developed affecting drug trafficking structures, but not coca growers. Socially, the soldiers generated close contact with the population. Circumstantially, a fungus's appearance impacted the coca plantations, wiping out 40% of the UHV crops. These factors motivated the transfer of crops to other valleys, and Colombia eventually displaced Peru as the main producer of coca. In the end, coca depreciated in the UHV, and alternative development programs had greater penetration among peasants, were favored by UN and U.S. Agency for International Development (USAID) international support programs, and led to solid alliances being established between the state and civil society.

As of 2002, the coca leaf has recovered its price; nevertheless, according to Manrique, the San Martin region consolidated the project's sustainability.[145] Manrique's research identified several factors contributing to this result. The first was the defeat in local elections of the political organizations associated with the local coca leaf-growers union. The new San Martin mayor's office established alliances at the local, state, and central levels for alternative crop development. The second factor was the implementation of support programs by the UN, USAID, NGOs, and other national and international governmental institutions, which led to incorporating traditional unions and creating new private companies and value chains. Peasants were then incorporated into coca crop

[143] Manrique, "Auge y Caída Del Tráfico Ilícito de Drogas En La Selva Alta Peruana," 142–43.

[144] In 1989 and 1990, the Peruvian government rejected offers from the United States for almost USD 40 million to support eradication and interdiction operations. See Felbab-Brown, *Shooting Up*, 55.

[145] Manrique, "Auge y Caída Del Tráfico Ilícito de Drogas En La Selva Alta Peruana," 144–47.

eradication programs and presented with profitable, safer, and violence-free alternatives. The third factor was reduced centralized interference in the programs. The peasants had greater participation in the decisions related to the design and implementation of the alternative programs. Finally, the local party's triumph in the elections of 2006 consolidated the projects' autonomy through strategies to improve the road network and the promotion of licit crops going to national and international markets.

The strategies' that proved successful in San Martin, however, were not extended to other departments of Peru.[146] Hugo Cabieses points out the deficiencies of the Peruvian government's strategies in other regions.[147] These shortfalls included the absence of preliminary economic-ecological studies, poor participation in the programs by the local population and authorities, the creation of local markets in areas not suitable for mono-production and agriculture export, and poor sustainability of plans, programs, and projects.

## C. SWITZERLAND: THE FOUR-PILLAR POLICY

Switzerland began recognizing illegal drug use and addiction as problems in the 1960s. Motivations for individuals to abuse drugs in Switzerland have been attributed to the reaffirmation of identity, protest, or stress release.[148] As the problem's visibility suddenly increased, it attracted interest in the political and social fields.[149] In response, homeless shelters and therapeutic facilities were opened, and doctors began prescribing methadone as a substitute for heroin use.[150] A 1924 law on illicit drugs was revised in 1975 due to the problematic social conditions generated by consumption at the national

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146 Manrique, 143.

147 Hugo Cabieses, *The 'Miracle of San Martin'and Symptoms of 'Alternative Development*', Transnational Institute, Drug Policy Briefing 34 (2010): 6–7, https://www.tni.org/en/briefing/miracle-san-martin-and-symptoms-alternative-development-peru.

148 Ambros Uchtenhagen, "Heroin-Assisted Treatment in Switzerland: A Case Study in Policy Change," *Addiction* 105, no. 1 (2010): 29, 30, https://doi.org/10.1111/j.1360-0443.2009.02741.x; Jean-Félix Savary, Chris Hallam, and Dave Bewley-Taylor, *The Swiss Four Pillars Policy: An Evolution from Local Experimentation to Federal Law*, Briefing Paper No. 18 (Oxford, England: The Beckley Foundation Drug Policy Programme, 2009), 2.

149 Savary, Hallam, and Bewley-Taylor, *The Swiss Four Pillars Policy*, 1.

150 Uchtenhagen, "Heroin-Assisted Treatment in Switzerland," 30.

level.[151] The law resulted in the development of prohibitive policies and repressive measures taken against drug traffickers and users.[152] The Cantons—administrative entities grouped by the Swiss Federation—were responsible for the interventions in the social and health areas, while the federal government was limited to financing education for prevention and treatment of drug abuse.[153] Nonetheless, because the government's ultimate goal was to achieve total abstinence among drug abusers, many of these users refused treatment, and the problem expanded.[154]

In the 1980s, there was an alarming growth in HIV / AIDS infections among those who injected drugs, and the virus was then spread through sexual transmission to many non-drug users.[155] In addition to this, Harald Klingemann describes the emergence of significant social and security problems that grew from the "Zurich youth revolution" and student mobilization, which in turn attracted international DTSs' to places where drug users gathered to consume.[156] In response, some cities allowed open drug use in "needle parks," so the police could observe and control criminal activities in a central location. Predictably, these sites achieved worldwide notoriety, and their deteriorating conditions negatively affected Switzerland's international image. The so-called needle parks were closed in 1992

[151] Harald Klingemann, "Drug Treatment in Switzerland: Harm Reduction, Decentralization and Community Response," *Addiction* 91 (June 1, 1996): 724, https://doi.org/10.1046/j.1360-0443.1996.9157238.x.

[152] Riaz Khan et al., "Understanding Swiss Drug Policy Change and the Introduction of Heroin Maintenance Treatment," *European Addiction Research* 20, no. 4 (2014): 4, https://doi.org/10.1159/000357234; Klingemann, "Drug Treatment in Switzerland," 60.

[153] Uchtenhagen, "Heroin-Assisted Treatment in Switzerland," 30.

[154] Savary, Hallam, and Bewley-Taylor, *The Swiss Four Pillars Policy*, 2.

[155] Savary, Hallam, and Bewley-Taylor, 2; Uchtenhagen, "Heroin-Assisted Treatment in Switzerland," 30.

[156] Klingemann, "Drug Treatment in Switzerland," 724.

under public pressure,[157] resulting in users moving to abandoned sites where conditions worsened, further increasing violence and clashes between gangs.[158]

Social and health management of the problem developed from the initial therapeutic shelters and communities at the cantonal level. Klingeman's studies found that, in the 1980s, drug users were offered two types of programs.[159] Residential programs materialized in detoxification centers and psychiatric clinics intending to help clients achieve abstinence. Non-residential programs—considered aid-for-survival, low-threshold, harm-reduction programs—were publicly funded to reach heavy users. Despite not being authorized at the federal level, treatment of heroin addiction in methadone prescription clinics was tolerated by the cantons. In 1992, under pressure from different entities in the political, scientific, and social sectors, the federal government authorized pilot prescription programs drawing on the experience of cities such as Zurich and Bern.

As documented by Riaz Khan et al., the interest the problem had generated in political, cultural, and non-governmental circles at the national level developed more rigorous studies.[160] The Cantonal government sent experts to the United Kingdom to investigate alternative prescription practices for heroin in its traditional form and the novel form of smokable heroin. For its part, the Sub-commission on Drug Issues of the Federal Narcotic Commission financed studies to review all the international experience regarding the prescription of narcotics and to design scientific research on the subject. The sub-commission concluded that the harm reduction approach to the drug problem was the best model for Switzerland.

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157 Khan et al., "Understanding Swiss Drug Policy Change and the Introduction of Heroin Maintenance Treatment," 201; Klingemann, "Drug Treatment in Switzerland," 724; Savary, Hallam, and Bewley-Taylor, *The Swiss Four Pillars Policy*, 2; Uchtenhagen, "Heroin-Assisted Treatment in Switzerland," 30; Arnold S. Trebach, "Why Zurich's Bad Idea on Drugs Went Wrong," *The New York Times*, March 27, 1992, sec. Opinion, https://www.nytimes.com/1992/03/27/opinion/l-why-zurich-s-bad-idea-on-drugs-went-wrong-635092.html.

158 Klingemann, "Drug Treatment in Switzerland," 724.

159 Klingemann, 725–28.

160 Khan et al., "Understanding Swiss Drug Policy Change and the Introduction of Heroin Maintenance Treatment," 205.

In 1994, as a result of a legislative process that included referendums, the government identified prevention, therapy, risk reduction, and law enforcement as the four pillars of its national drug strategy.[161] Other measures were added to the original project "such as drug treatments using prescription heroin."[162] In 1995 the four-pillars policy was enacted.[163] This policy did not decriminalize the trade and consumption of drugs but recognized that addicts continue to have rights despite their marginalized status. Two alternatives to the four-pillar policy have been voted on in referendums: in 1997, a repressive-preventative policy and in 1998, a legalization alternative.[164] The alternative proposals promoted by conservative factions were rejected by more than two-thirds of the popular vote. In November 2008, a Swiss referendum was approved by 68% in favor of ratifying a federal law on narcotics, which "finally established in legislation the principle of 'four pillars.'"[165]

In addition to the alternative proposals promoted by conservatives, the Swiss four-pillars drug policy has encountered other resistance and detractors both at the national and international level. For example, Joanne Csete documents the police and judicial system's initial resistance to implementing the policy's measures. This resistance was overcome by including the police and judicial representatives in the federal council's discussions to evaluate results and develop strategies.[166]

At the international level, a group of experts charged with verifying the policy's compliance with UN conventions recommended that the World Health Organization (WHO) evaluated the "controversial experiment" of heroin-assisted therapy (HAT).[167] The WHO concluded the positive medical feasibility and health, social, and criminal

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161 Savary, Hallam, and Bewley-Taylor, *The Swiss Four Pillars Policy*, 3–4.

162 Savary, Hallam, and Bewley-Taylor, 4.

163 Savary, Hallam, and Bewley-Taylor, 4.

164 Khan et al., "Understanding Swiss Drug Policy Change and the Introduction of Heroin Maintenance Treatment," 202.

165 Savary, Hallam, and Bewley-Taylor, *The Swiss Four Pillars Policy*, 1.

166 Joanne Csete, *From the Mountaintops: What the World Can Learn from Drug Policy Change in Switzerland*, Lessons for Drug Policy Series (New York: Open Society Foundations, 2010), 25–27.

167 Csete, 24–25.

benefits of the HAT. Nevertheless, because of the design of the trial, the evaluation was inconclusive in contrasting the HAT benefits to alternative therapies. The UN group of experts pronounced the WHO study results "inadequate to justify any such initiatives by other governments," adding that other countries could not easily replicate the financial means made available to the Swiss government. The Swiss Federal Department of Public Health defines the four-pillars drug policy as follows:

> Prevention helps to reduce drug use by preventing people from starting to use drugs and developing dependency.... Therapy helps to reduce drug use by enabling people to overcome dependency or at least by keeping this option realistic for them in the future.... Harm reduction helps to lower the negative consequences of drug consumption on the users themselves and indirectly also on society, by making possible a consumption that is less problematic both to the individual concerned and to society.... Law enforcement helps to reduce the negative impact of drug use on society by using the appropriate regulatory measures to enforce the ban on illegal drugs.[168]

Ambros Uchtenhagen argues that since the implementation of the four-pillars policy in 1991, there has been a reduction in deaths due to overdose by 50%; incidence of initial heroin use by 80%; HIV infections by 65%; drug-related urban delinquency; annoyances by the open drug scenes; and finally, the public visibility of the drug problem.[169]

## D. MEXICO: THE WAR ON DRUGS

Mexico's first prohibitionist policies resulted from the international conferences on drugs in Shanghai in 1909 and The Hague in 1912.[170] In 1926, prohibition included marijuana and opium, and consumers and traders began to be seen as criminals.[171] In 1931, drug trafficking and drug addiction were declared federal crimes.[172] By the 1930s,

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[168] Federal Department of Public Health, *Switzerland's National Drugs Policy: The Federal Government's Third Package of Measures to Reduce Drug-Related Problems (MaPaDro III) 2006–2011*, Swiss Confederation (Geneva, Switzerland: Federal Office of Public Health, 2006), 19–22.

[169] Uchtenhagen, "Heroin-Assisted Treatment in Switzerland," 35.

[170] Astorga, *El Siglo de las Drogas*, 22.

[171] Astorga, 23.

[172] Astorga, 40.

merchants began to amass large fortunes with the illicit business, and some of them entered politics to be more successful. Luis Astorga asserts the drug trade was born structurally linked to politics and not as a parallel or autonomous power.[173]

The Mexican marijuana business began after World War I, giving birth to the international organizations for drug trafficking.[174] After the Mexican revolution (1910–1919), the government imposed a corporatist model in agriculture in which the peasant population was integrated into the state party's vertical structure,[175] which suggests that marijuana and poppy cultivation was politically tolerated. The boom in the trafficking of Mexican opium and its derivatives began in World War II when poppy-producing areas in Asia fell under the control of the Axis countries, and the U.S. pharmaceutical industry required supply alternatives.[176] That said, there is no knowledge of a formal agreement with the United States promoting the proliferation of crops in Mexico.[177] In 1947, the anti-drug campaigns, initially directed by health authorities, passed under the control of the Attorney General's Office.[178]

With U.S. support to the Mexican government, in 1977, the Condor operation deployed more than 10,000 soldiers in the Golden Triangle—a rural area on the limits of the states of Chihuahua, Durango, and Sinaloa—in coordination with the Attorney General of the Republic (PGR). Astorga has written of some novel social and criminal responses to government actions targeting the drug problem.[179] For example, the strategy caused the exodus of peasants to the cities, revealing that approximately 30% of the Sinaloan municipality of Badiraguato depended on drug trafficking. Astorga has also documented that, in the Sinaloan agricultural fields in the 1980s, drug crop pickers earned up to seven

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173 Astorga, 36.

174 Astorga, 35.

175 Gunther Dietz, *Del Indigenismo al Zapatismo: La Lucha por una Sociedad Mexicana Multi-Etnica*, [From Indigenismo to Zapatismo: The Struggle for a Multi-ethnic Society in Mexico] (Quito, Ecuador: Abayala, 2005).

176 Grayson, *Mexico*, 24.

177 Astorga, *El Siglo de las Drogas*, 75.

178 Astorga, 57.

179 Astorga, 106–13.

and a half times more daily wages than a laborer in licit crops.[180] Moreover, Guillermo Trejo and Sandra Ley affirm that, through the Condor operation, "members of the Federal Security Directorate (DFS) … conducted a major reorganization of the drug trafficking industry."[181] Supposedly assisted by DFS's officials, the druglords moved to other states and purchased real estate in the southwestern United States.[182]

In the last two decades of the 20th century, the interest and statistical foundation of studies on the drug problem became more pronounced in the media than in the governmental and scientific fields.[183] This situation emanated from, for example, the fact that the investigations into the kidnapping and murder of DEA agent Enrique Camarena in 1985 were guided mainly by North American agencies rather than Mexican authorities' data. Astorga adds that this event was salient because it fully documented and revealed the penetration of DTSs in Mexican political and business circles and strengthened the social, economic, political, and cultural conditions promoting the drug business.

Starting in 1989, opposition political organizations began to win popularly elected positions in state governorships and the legislative branch, eventually winning the Mexican presidency in 2000.[184] The democratic transition broke the "rules of the game" established and respected for many years among state governments, federal representations in the states, and criminal structures.[185] This led to conflicts among the criminal structures.[186] As a result, DTSs created armed groups to defend and expand their territory.[187] Media and

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[180] Astorga, 125.

[181] Trejo and Ley, *Votes, Drugs, and Violence*, 69.

[182] Grayson, *Mexico*, 32.

[183] Astorga, *El Siglo de las Drogas*, 116–20.

[184] Grayson, *Mexico*, 51; Astorga, *El Siglo de las Drogas*, 154.

[185] Astorga, 155.

[186] Benjamin Lessing, *Making Peace in Drug Wars: Crackdowns and Cartels in Latin America* (New York: Cambridge University Press, 2017), 204.

[187] Trejo and Ley, *Votes, Drugs, and Violence*, 129.

Mexican authorities maintain that the gun supply for those armed groups had its origins in the United States.[188]

The 2006 presidential succession marked the start of the confrontation between the DTSs and the Mexican security forces that fully involved the military. Trejo and Ley opine that "By declaring war on the country's drug cartels, the president was hoping to shift public opinion away from the polarizing post-election crisis toward the country's rising security crisis."[189] Benjamin Lessing argues that the Mexican authorities used the civil wars to advance their objectives of "crushing armed opposition, restoring the rule of law, and establishing a monopoly on the use of force."[190] The DTSs, however, were unwilling to let the state's power grow at the cost of the influence they had come to exert with the pre-democratization regime.[191]

At the Mexican government's request, in 2007, the Merida Initiative was inaugurated.[192] The U.S. government channeled resources to the Mexican government's anti-drug and law assistance programs focusing on counternarcotics, border security and counterterrorism, public security, and institution building. The strategy worked in terms of neutralizing key DTSs' members and fragmenting large parts of the DTS criminal structure.

Lessing explains that in 2006–2012 the federal government started the cartel-state conflict.[193] Trejo and Ley highlight the diversification of the criminal activity of the DTSs during this phase, which included crimes such as kidnapping, extortion, and illegal extraction of natural resources such as timber and mining.[194] This expansion of activities

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188 Monica Medel and Francisco E. Thoumi, "Mexican Drug 'Cartels,'" in *The Oxford Handbook of Organized Crime*, ed. Letizia Paoli (New York: Oxford University Press, 2014), 213.

189 Trejo and Ley, *Votes, Drugs, and Violence*, 184.

190 Lessing, *Making Peace in Drug Wars*, 3.

191 Lessing, 50.

192 Clare Ribando Seelke, *Mexico: Evolution of the Mérida Initiative, 2007–2021*, CRS InFocus IF10578 (Washington, DC: U.S. Congressional Research Service, January 13, 2021), 1, https://crsreports.congress.gov/product/pdf/IF/IF10578.

193 Lessing, *Making Peace in Drug Wars*, 220.

194 Trejo and Ley, *Votes, Drugs, and Violence*, 23.

increased the intervention of DTSs in politics at the municipal level—sometimes through the murder of candidates—to secure continuity in financing their criminal activities. Furthermore, the increase in drug consumption since 2008 could suggest that the distribution of drugs that intensified in the areas under the control of the DTSs was a means of financing their armed groups.[195]

Most studies attribute the increase in violence rates to the federal government's strategy in the cartel-state conflict. For example, Jason Lindo and Maria Padilla studied the effects of the arrests of relevant members of the DTSs—the kingpin approach—on the levels of violence in the 2008–2011 period.[196] The study found that the kingpin strategy increased the homicide rate by 80% in the municipality where criminals were captured and up to 30% in neighboring municipalities controlled by the affected DTS.[197]

Other authors describe additional factors driving violence. For instance, Gerardo Hernandez cites the inability of the federal government to reduce the causes of violence and to provide security, and the unwillingness of state governments to assume their share of responsibility for the strategy.[198] David Shirk and Joel Wallman found a correlation between increasing violence in Mexico and periods of decreased throughput of cocaine from Colombia, which increased the cost of the alkaloid and fueled intercartel conflicts to

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[195] After having grown at an average rate of 0.13% per year between 2002 and 2008, the percentage of once-in-a-lifetime consumers (men) between 12 and 65 in Mexico increased from 8.8 to 12.5% (1.23% annually) between 2008 and 2011. See Jorge Villatoro et al., "El consumo de drogas en México: Resultados de la Encuesta Nacional de Adicciones, 2011," [Drug use in Mexico: Results of the National Survey on Addictions, 2011] *Salud Mental* 35, no. 6 (December 2012): 447–57, http://www.scielo.org.mx/scielo.php?script=sci_abstract&pid=S0185-33252012000600001&lng=es&nrm=iso&tlng=es; Jorge Villatoro et al., "Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco" [National Survey of Drug, Alcohol and Tobacco Consumption ] (Mexico: Secretaria de Salud, 2017), https://drive.google.com/file/d/1zIPBiYB3625GBGIW5BX0TT_YQN73eWhR/view.

[196] Jason M. Lindo and María Padilla-Romo, *Kingpin Approaches to Fighting Crime and Community Violence: Evidence from Mexico's Drug War*, NBER Working Paper WP21171 (Cambridge, MA: National Bureau of Economic Research, May 2015), https://doi.org/10.3386/w21171.

[197] Lindo and Padilla-Romo, 4.

[198] Gerardo Hernández, "La política de seguridad en México entre 2012 y 2018. De la confrontación a la prevención del delito," [Security policy in Mexico between 2012 and 2018. From confrontation to crime prevention] *Espiral Estudios sobre Estado y sociedad* 27, no. 77 (2020): 73, https://doi.org/10.32870/eees.v27i77.7082.

control the drug trade.[199] In 2011, the Merida initiative expanded its scope to include programs for human rights, border security, and education to "address root causes of violence, reduce drug demand, and build a 'culture of lawfulness'."[200] Despite the initiative, the homicide rate at the national level continued to rise,[201] and the public perception of corruption increased.[202]

According to a report by the National Commission against Addictions (CONADIC) of the Health Secretariat, Mexico has a strategy based on "prevention, timely detection, and treatment of use, abuse, and dependence on psychoactive substances."[203] Yet, the report also states that "there is a lack of a systematic and permanent record of the institutions and preventive programs carried out in the country, particularly those developed by civil society organizations."[204] Additionally, Felbab-Brown opines that, "Given the poor quality and capacities of drug treatment centers in Mexico, the spread of drug abuse will coincide with a significant decrease in public health and increase in the deadly rate of overdose."[205]

At the beginning of the 2018–2024 presidential period, the creation of a National Guard and the view that the armed forces were a central resource to suppress violence

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199 David Shirk and Joel Wallman, "Understanding Mexico's Drug Violence," *Journal of Conflict Resolution* 59, no. 8 (December 1, 2015): 1348–76, https://doi.org/10.1177/0022002715587049.

200 Seelke, *Mexico: Evolution of the Mérida Initiative, 2007–2021*, 1; Perla Zoraida Barreda Vidal, "La Cooperación Bilateral México-Estados Unidos contra la Delincuencia Organizada Trasnacional en el Marco de la Iniciativa Mérida," [The Mexico-United States Bilateral Cooperation against Transnational Organized Crime in the Framework of the Merida Initiative] *Revista IUS* 8, no. 34 (December 2014): 43, http://www.scielo.org.mx/scielo.php?script=sci_abstract&pid=S1870-21472014000200004&lng=es&nrm=iso&tlng=es.

201 "Mexico's Drug War," Council on Foreign Relations, accessed February 1, 2021, https://www.cfr.org/backgrounder/mexicos-drug-war.

202 June S. Beittel, *Mexico: Organized Crime and Drug Trafficking Organizations*, CRS Report No. R41576 (Washington, DC: U.S. Congressional Research Service, July 28, 2020), 10.

203 Alejandro Sanchez Guerrero et al., *Informe sobre la Situacion del Consumo de Drogas en Mexico y su Atencion Integral* [Report on the Drug Use Situation in Mexico and its Comprehensive Care] (México City: Gobierno de Mexico, CONADIC-Comision Nacional contra las Adicciones, 2019), 7.

204 Sanchez Guerrero et al., 37.

205 Vanda Felbab-Brown, "Fending off Fentanyl and Hunting down Heroin," *The Opioid Crisis in America. Domestic and International Dimensions* (Washington, DC: Brookings, July 2020, 18.

received strong criticism.[206] Felbab-Brown opines that the Mexican government "has not yet managed to effectively operationalize an alternative law enforcement strategy."[207] Besides, as June Beittel has observed, the popular perception of safety in Mexico declined in the first months of 2020.[208]

Regarding criminal groups, the U.S. Congressional Research Service (CRS) reports that the fragmentation of the large DTSs "has made the crime situation diffuse and the crime groups' behavior harder to suppress or eradicate."[209] The CRS documents that during the COVID 19 pandemic, criminal groups continued to generate violence due to territorial disputes. In its analysis, the CRS also asserts that Mexico continues to be an important source of heroin, marijuana, and synthetic drugs such as methamphetamines and fentanyl, while also providing the main route of access for cocaine from South America. The study concludes that synthetic drugs, especially fentanyl, are gradually replacing marijuana and heroin, which will probably reduce the profitability of marijuana and poppy cultivation, affecting farmers who cultivate those crops as a means of subsistence.[210]

In his FY2021 "drug majors" determination, U.S. President Donald Trump criticized the Mexican government's performance in its anti-drug efforts.[211] Nonetheless, the U.S. State Department authorized $159 million in the FY2021 Consolidated Appropriations Act to accounts that fund the Merida initiative.[212] Felbab-Brown has published that the U.S. government stance on the drug problem—released on April 1, 2021—centers on "treatment, prevention, and harm reduction."[213] Regarding drug supply, Felbab-Brown adds that United States is currently seeking to partner with countries like

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206 Beittel, *Mexico: Organized Crime and Drug Trafficking Organizations.*

207 Felbab-Brown, *Fending off Fentanyl and Hunting down Heroin*, 7.

208 Beittel, *Mexico: Organized Crime and Drug Trafficking Organizations*, 10.

209 Beittel, 11.

210 Beittel, 14.

211 Seelke, *Mexico: Evolution of the Mérida Initiative, 2007–2021*, 2.

212 Seelke, 2.

213 Vanda Felbab-Brown, "Biden Takes a Reformist Drug Strategy, but the Challenge of Supply Countries Remains," *Brookings* (blog), April 19, 2021, https://www.brookings.edu/blog/order-from-chaos/2021/04/19/biden-takes-a-reformist-drug-strategy-but-the-challenge-of-supply-countries-remains/.

Colombia and Mexico in "deepening bilateral cooperation on public health approaches, expanding effective state presence, developing infrastructure, and ensuring respect for the rule of law and human rights in drug policy responses."[214] The publication recognizes that this U.S. strategy is not going to be easy, particularly with Mexico.

[214] Felbab-Brown.

# V. ANALYSIS AND FINDINGS

In the second chapter of this thesis, the general dynamics of the drug problem were described. Chapter IV reviewed more specific dynamics conditioned by the particularities of the affected countries and their strategies to deal with the problem. Both chapters make it possible to identify the key variables and relevant feedback loops of the drug problem, which the CLDs depict in this chapter. In the first section, the Cynefin framework and double-loop learning are used to acquire situational awareness of the drug problem. In the second section, the CLD of the drug problem is presented, and its main variables and feedback are described, using tools of Social Networks Analysis to assess their relative importance. In the third section, the CLD of the drug problem in Mexico is discussed, and potential leverage points are identified, offering potential strategies to address the problem.

## A. MAKING SENSE OF THE DRUG PROBLEM

As stated in Chapter II, the knowable and complex domains of the Cynefin framework are the only ones where emergent patterns form on their own. This affirmation is consistent with the drug problem as evidenced, among other examples, by the militias' emergence in the case of Brazil, the structural changes in the DTSs in Mexico, or the emigration of coca crop producers outside the department of San Martin in the case of Peru. In its initial state, however, the drug problem is in the complex domain. Initially, cause-effect feedbacks in the drug problem can only be understood with hindsight and by applying particular perspectives of the time and place in which they are analyzed. Additionally, these feedbacks are non-linear in nature and therefore not predictably repeatable. The drug problem in the complex domain has historically generated behaviors that have been only temporarily managed. Brazil and Mexico represent cases where governments have temporarily reacted to the problem in a probe-sense-respond process. Consequently, these countries' attempts to solve the problem have increased the resilience of the members of the drug supply chain while the governments have been unable to strengthen the resilience of the policies they have implemented. Brazil and Mexico continue to manage the drug problem in a complex domain.

The case studies from Switzerland and Peru illustrate the possibility of moving the drug problem from the complex to the knowable domain by applying systems thinking. Switzerland's experiences gathered between the 1970s and the 1990s—including punitive policies—allowed this country to identify the system's behavior. With this holistic understanding of the problem, Swiss policy considered strategies to address each of the components (or pillars), anticipating their feedbacks' impact on the overall behavior of the system. Peru's case shows how investment in alternative crops, the establishment of commercial networks for crop products, and decentralized freedom in decision making were planned and applied "Just-in-time" to the specific scenario of the Department of San Martin's problem. In both countries, problem management in the knowable domain has allowed them to apply a reductionist sense-analyze-respond procedure.

Single and double-loop learning processes also prove useful in the making sense of the policies attending the drug problem, when we are tracing the analogous situations with the WD and Switzerland's four-pillars policy, respectively (Figure 3).[215]

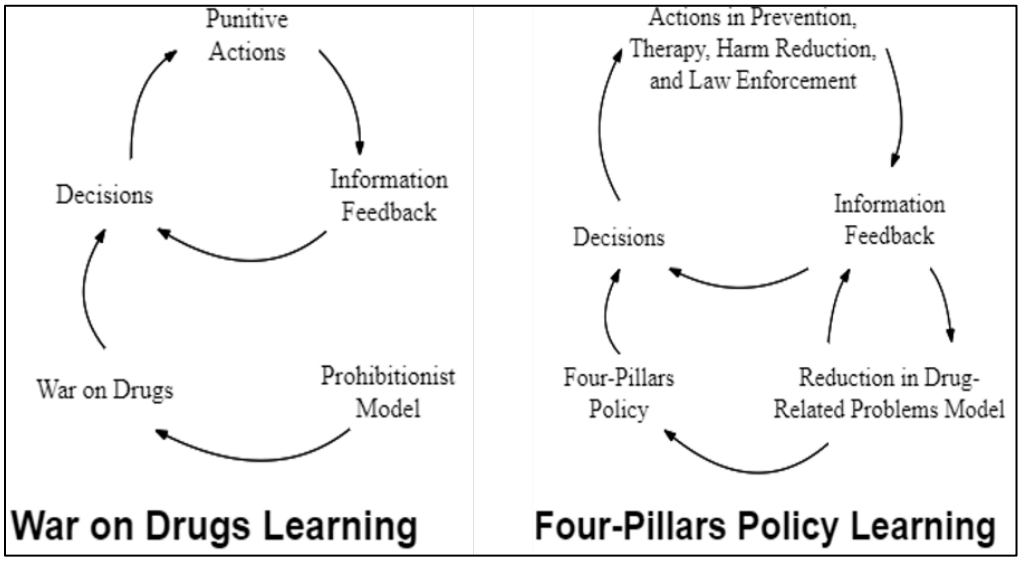


Figure 3. Comparison of the WD and the four-pillars policy in the learning process

[215] Adapted from: Sterman, *Business Dynamics*, 19.

Consistent with the single-loop learning process, the prohibitionist model led to the operating and decision rules comprising the WD. An example of these rules are laws indiscriminately criminalizing all addicts and drug-supply chain members. The decision then is to apply punitive policies in the real world. And the resulting number of deaths associated with organized crime is the classic measurement of feedback effectiveness for the reduction of violence and by which the strategy is adjusted. Using single loop learning, the WD's resulting adjustment is a greater investment in the security forces' warfighting capacity and increased deployments of forces—like Mexico's operation Condor or Brazilian UPPs—that have failed to achieve a sustained reduction in violence rates or have worsened the problem.

By contrast, Switzerland's case shows the application of double-loop learning. This strategy resulted from the establishment of a bridge between the feedback from reality and the mental model. Studies carried out in the late 1980s collected national and international data from the real world. Consequently, decisions were gradually adjusted based on measurements of reality and changes in the rules—Four-Pillars Policy—as a mental model adjustment product. Sterman has asserted that, "As our mental models change we change the structure of our systems, creating different decision rules and new strategies."[216] Changes in the system's structural perceptions redefine its proper limits and understandings of cause-effect relationships, which drive reasonable adjustments to articulate the problem.[217] For example, in Switzerland, the consumer was no longer considered a criminal and was treated for an illness. This change allowed anti-drug policies in that country—initially bounded by the WD culture to the area of law enforcement—to be extended to the areas of prevention, therapy, and harm reduction. Still, consistent with the double-loop learning process, the strategy is flexible. The four-pillar drug policy recognizes that the specific actions derived from it are the product of constant review and adaptation.[218]

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[216] Sterman, 18.

[217] Sterman, 16.

[218] Federal Department of Public Health, Switzerland's National Drugs Policy, 23.

## B. THE DRUG PROBLEM AS A SYSTEM

This section describes and analyzes the structure of the drug problem system based on its CLD. The objective is to describe the different feedback loops and to evaluate the variables' relevance based on their frequency of appearance in the different CLDs' loops. In addition, a network built from the system variables is analyzed, using social network analysis metrics to confirm the impact of the variables on the system's behavior in general.

### 1. Structure and Feedback Loops

Drawing on the information in Chapters II and IV, Figure 4 depicts 20 variables and 34 feedback loops found in the drug problem in general.

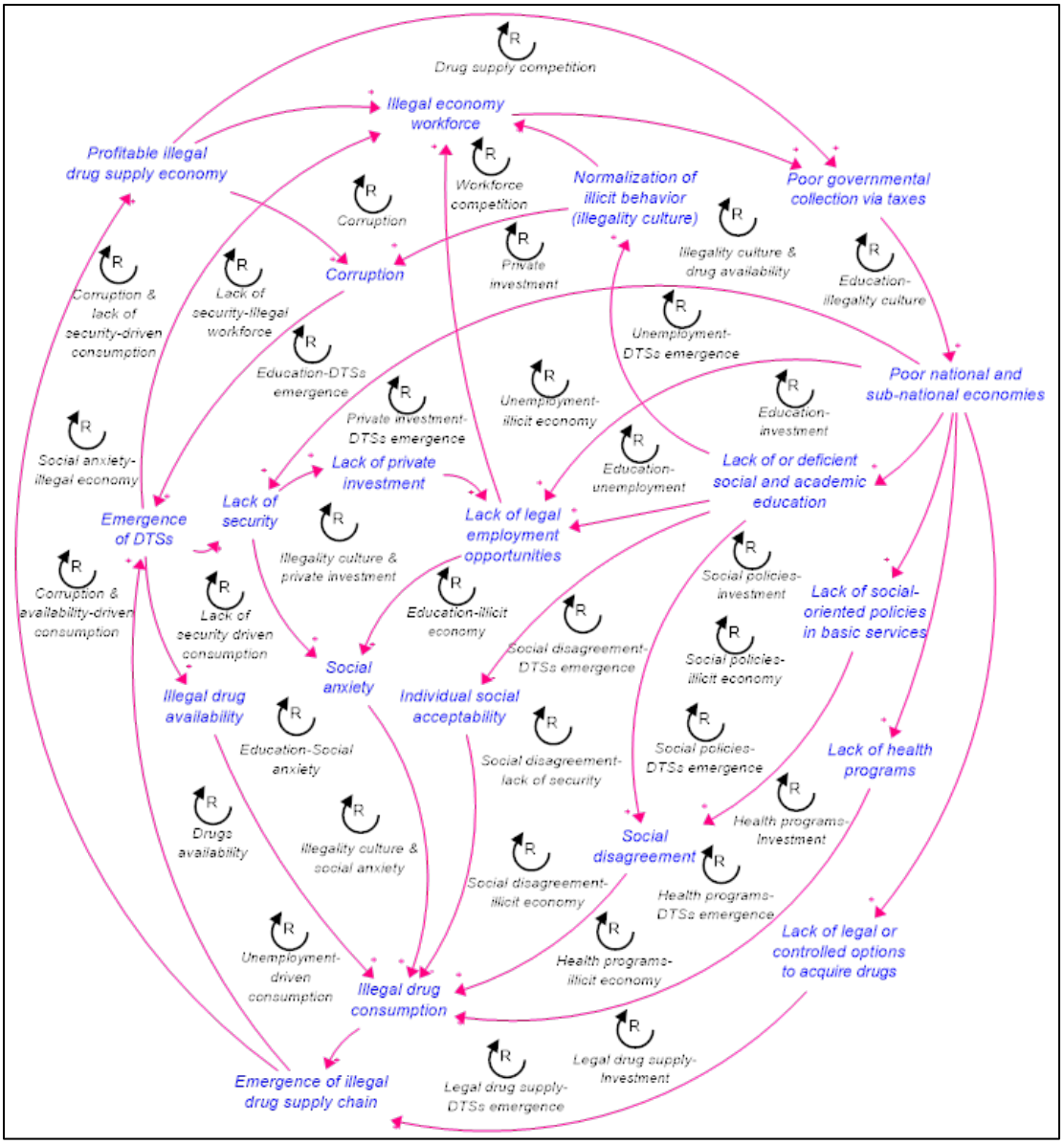



Figure 4. Causal loop diagram of the drug problem.[219]

The emergence of the illegal drug supply chain is due to the existence of an illicit consumer market, as documented by the experience of Mexico in the first half of the 20th century. Additionally, the drug supply chain benefits from the lack of legal alternatives to acquiring drugs, as occurred in the opioid overdose epidemic in the United States in 2017.

[219] All Causal Loop Diagrams in this thesis were created using the software ISEE Systems, Stella Architect ®.

The case of Mexico also shows that the need facilitating the emergence of the drug supply chain promotes the emergence of DTSs and the economy of illegal drug supply. The economic power generated by the illicit drug supply chain offers sufficient resources to bribe corrupt officials, as well as to pay the members of the supply chain workforce. Specifically, it offered a source of subsistence to the farmers producing coca leaves—in Peru—and poppy and marijuana—in Mexico. This economic capacity allows DTSs to offer higher salaries than the formal labor market, as documented in the cases of Brazil, Peru, and Mexico, so the illicit economy offers more attractive jobs than the government and private industry. Additionally, the illicit economy reduces the government's possibilities of collecting taxes, affecting the state's economic capacity.

In turn, corruption also favors the emergence of the DTSs and other criminal groups, such as the militias in Brazil and the self-defense groups in Peru and Mexico. Specifically, the Brazilian case also shows that the emergence of DTSs and other criminal groups increases the availability of drugs to society, which encourages consumption.

Another factor contributing to drug abuse is social anxiety, which, as documented by the UNODC, can be caused by socioeconomic factors, such as lack of security and job opportunities. For its part, the government's failure to provide security increases due to the lack of its investment in law enforcement and its subsequent inability to control criminal activities and conflicts perpetrated by the DTSs. This lack of security, in turn, deters private investment and international and NGOs, which inhibits the generation of legitimate jobs or alternatives for subsistence. The lack of jobs is further aggravated by the lack of local investment from national and subnational governments given their budgetary limitations; likewise, there is insufficient professional and technical training due to a deficient education system suffering from inadequate government funding. In turn, poor education empowers the normalization of the culture of illegality.

In addition to limiting the availability of professional and skilled labor, social and academic educational deficiencies can lead to poor individual identity formation and social discontent. The last two variables mentioned are factors that increase the individual's proclivity for drug abuse, as shown by the case of Switzerland between the 1970s and 1990s. Another causal factor of social discontent is the lack of policies for the efficient

supply of basic services—such as water, sewerage, and electricity—also limited by government budget restrictions.

Finally, economic weakness aggravates the lack of health programs and precludes the possibility of offering drug alternatives as a therapeutic measure. The first variable—lack of health programs—increases a society's proclivity for illegal drug use, while the second—lack of options to acquire drugs—strengthens the emergence of illicit drug supply chains.

The different combinations of the variables and feedback making up the structure of the drug problem system generate 34 reinforcing loops schematized in the Appendix and summarized in Table 1.

Table 1. Summary of loops and variables of the drug problem's CLD

| Loops | Variables | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Corruption | Emergence of DTSs | Emergence of illegal drug supply chains | Illegal drug availability | Illegal drug consumption | Illegal economy workforce | Individual social acceptability | Lack of security | Controlled option to acquire drugs | Governmental incomes via taxes | Health programs | Legal employment opportunities | Social and academic education | Private investment | Social-oriented policies in basic services | Illegality culture) | Poor national and subnational economies | Profitable illegal drug supply economy | Social anxiety | Social disagreement |
| 01. Corruption | ■ | ■ | | | | ■ | | | | ■ | | | ■ | | | ■ | ■ | | | |
| 02. Corruption & availability-driven consumption | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | | | ■ | | |
| 03. Corruption & lack of security-driven consumption | ■ | ■ | ■ | | ■ | | | ■ | | | | | | | | | | ■ | ■ | |
| 04. Drugs availability-driven consumption | | ■ | ■ | ■ | ■ | | | | | | | | | | | | | | | |
| 05. Drug supply competition | | | ■ | | | | | | ■ | ■ | | | | | | | ■ | ■ | | |
| 06. Education-DTSs emergence | | ■ | ■ | | ■ | ■ | ■ | | | ■ | | | ■ | | | | ■ | | | |
| 07. Education-illegality culture | | | | | | ■ | | | | ■ | | | ■ | | | ■ | ■ | | | |
| 08. Education-illicit economy | | | ■ | | ■ | | ■ | | | ■ | | | ■ | | | | ■ | ■ | | |
| 09. Education-investment | | ■ | ■ | | ■ | ■ | ■ | ■ | | ■ | | ■ | ■ | ■ | | | ■ | | | |
| 10. Education-Social anxiety | | ■ | ■ | | ■ | ■ | | | | ■ | | ■ | ■ | | | | ■ | | ■ | |
| 11. Education-unemployment | | | | | | ■ | | | | ■ | | ■ | ■ | | | | ■ | | | |
| 12. Health programs-DTSs emergence | | ■ | ■ | | ■ | ■ | | | | ■ | ■ | | | | | | ■ | | | |
| 13. Health programs-illicit economy | | | ■ | | ■ | | | | | ■ | ■ | | | | | | ■ | ■ | | |
| 14. Health programs-Investment | | ■ | ■ | | ■ | ■ | | ■ | | ■ | ■ | ■ | | ■ | | | ■ | | | |
| 15. Illegality culture & drug availability | ■ | ■ | ■ | ■ | ■ | | | | | ■ | | | ■ | | | ■ | ■ | ■ | | |
| 16. Illegality culture & private investment | ■ | ■ | ■ | | ■ | | | ■ | | ■ | | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | |

| Loops | Variables | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Corruption | Emergence of DTSs | Emergence of illegal drug supply chains | Illegal drug availability | Illegal drug consumption | Illegal economy workforce | Individual social acceptability | Lack of security | Controlled option to acquire drugs | Governmental incomes via taxes | Health programs | Legal employment opportunities | Social and academic education | Private investment | Social-oriented policies in basic services | Illegality culture) | Poor national and subnational economies | Profitable illegal drug supply economy | Social anxiety | Social disagreement |
| 17. Illegality culture & social anxiety | ■ | ■ | ■ | | ■ | | | ■ | | ■ | | | ■ | | | ■ | ■ | ■ | ■ | |
| 18. Lack of security-driven consumption | | ■ | ■ | | ■ | | | ■ | | | | | | | | | | | ■ | |
| 19. Lack of security-Illegal workforce | | ■ | ■ | | ■ | ■ | | ■ | | ■ | | | | | | | ■ | | ■ | |
| 20. Legal drug supply-DTSs emergence | | ■ | ■ | | | ■ | | | ■ | ■ | | | | | | | ■ | | | |
| 21. Legal drug supply-Investment | | ■ | ■ | | | ■ | | ■ | ■ | ■ | | ■ | | ■ | | | ■ | | | |
| 22. Private investment | | | | | | ■ | | ■ | | ■ | | ■ | | ■ | | | ■ | | | |
| 23. Private investment- DTSs emergence | | ■ | ■ | | ■ | ■ | | ■ | | ■ | | ■ | | ■ | | | ■ | | ■ | |
| 24. Social anxiety-illegal economy | | | ■ | | ■ | | | | | ■ | | ■ | ■ | | | | ■ | ■ | ■ | |
| 25. Social disagreement-DTSs emergence | | ■ | ■ | | ■ | ■ | | | | ■ | | | ■ | | | | ■ | | | ■ |
| 26. Social disagreement-illicit economy | | | ■ | | ■ | | | | | ■ | | | ■ | | | | ■ | ■ | | ■ |
| 27. Social disagreement-Lack of security | | ■ | ■ | | ■ | ■ | | ■ | | ■ | | ■ | ■ | ■ | | | ■ | | | ■ |
| 28. Social policies-DTSs emergence | | ■ | ■ | | ■ | ■ | | | | ■ | | | | | ■ | | ■ | | | ■ |
| 29. Social policies-illicit economy | | | ■ | | ■ | | | | | ■ | | | | | ■ | | ■ | ■ | | ■ |
| 30. Social policies-investment | | ■ | ■ | | ■ | ■ | | ■ | | ■ | | ■ | | ■ | ■ | | ■ | | | ■ |
| 31. Unemployment-driven consumption | | ■ | ■ | | ■ | | | ■ | | | | ■ | | ■ | | | | | ■ | |
| 32. Unemployment-DTSs emergence | | ■ | ■ | | ■ | ■ | | | | ■ | | ■ | | | | | ■ | | ■ | |
| 33. Unemployment-illicit economy | | | ■ | | ■ | | | | | ■ | | ■ | | | | | ■ | ■ | ■ | |
| 34. Workforce competition | | | | | | ■ | | | | ■ | | ■ | | | | | ■ | | | |
| Variables' frequency in the different loops | 6 | 23 | 29 | 3 | 26 | 19 | 3 | 13 | 3 | 29 | 3 | 15 | 14 | 9 | 3 | 5 | 29 | 12 | 11 | 6 |

## 2. Relevance of the Variables

Figure 5 depicts the frequencies with which the variables are integrated into the loops of the CLD. The graph shows that three variables appear in 29 of the 34 (85%) loops of the system. The first is the economic solidity of the governments as a variable conditioning the financing of programs involved in the drug problem. The second is the lack of governmental incomes via taxes as a variable influencing the economic soundness of governments. The opinion of the WHO regarding the infeasibility of most countries to implement treatments against addiction, such as those included in the four-pillars policy of Switzerland, suggests the importance of maintaining an economy that allows investment in programs to confront the drug problem. The third variable most frequently considered

in the system's loops is the emergence of illegal drug supply chains as an effect of illicit drug use and the lack of controlled alternatives for drug acquisition.

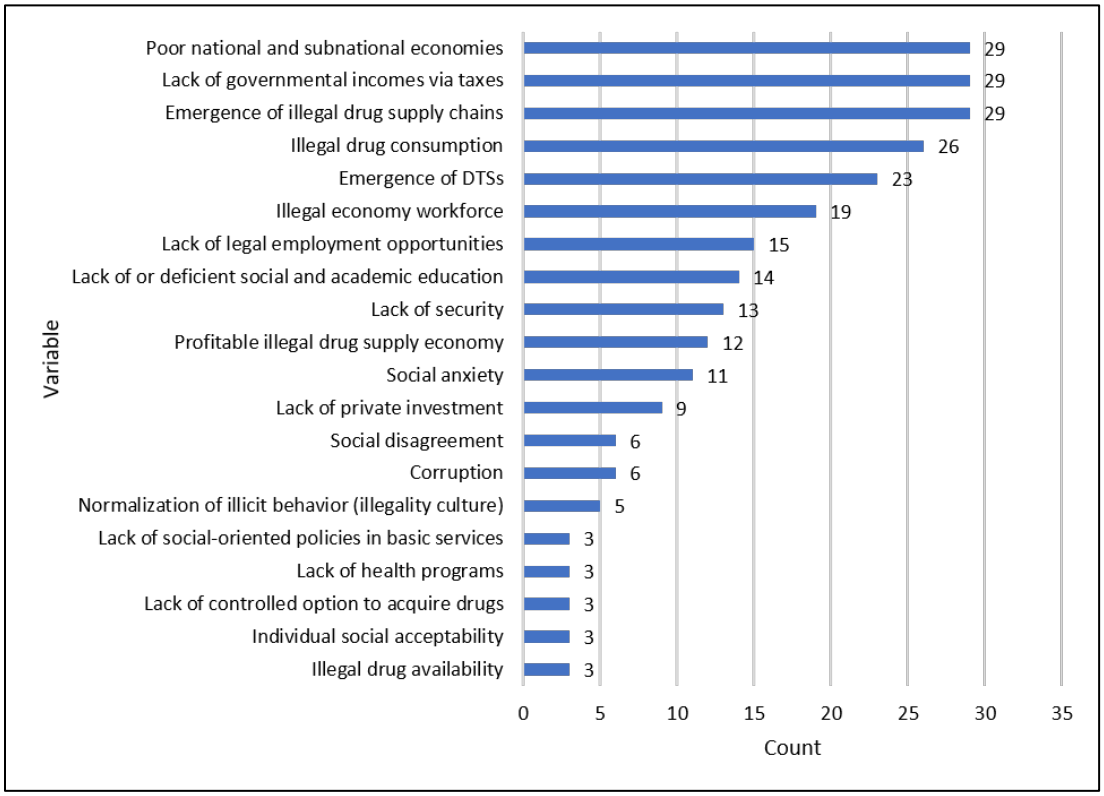



Figure 5. Variable's frequency in the loops of the drug problem system

The following two variables, illegal drug consumption and the emergence of DTSs, appear in 26 of the 34 (76.5%) and in 23 (67.6%) of the system's loops, respectively. Coincidentally, these two variables are the focus of prohibitionist practices. Besides, the first is a cause and the second an effect of the emergence of the drug supply chains mentioned previously among the most frequent variables in the system's loops. The WD is intended to change the cycles associated with these variables in order to disrupt the drug supply chains and change the system's behavior. Nonetheless, as has already been discussed, the prohibitionist approach has had poor results. Supported by its solid financial system, the Swiss government focused its efforts on the variable of illegal drug consumption, changing the prohibitionist perspective to reduce the problems associated

with heroin use. This change shifted the polarity of the cycles associated with these variables and modified the system's impact on associated variables such as lack of security.

Intervening in 19 loops, the illegal economy workforce is the last of the variables present in more than half of the system's loops (55.9%). The case of Peru highlights the importance of this variable. In the San Martin region, after the fall in coca leaf prices and the plague of the crops in the late 1980s, the farmers originally dedicated to the cultivation of coca leaves accepted the implementation of alternative crops. Additionally, these conditions were also used to introduce governmental and non-governmental financing, which confirms the importance of the availability of resources to materialize programs that offer employment alternatives to the members of the drug supply chain.

As one of the causes of the illegal economy workforce, the lack of legal employment opportunities intervenes in 44.1% of the system's loops (15 out of 34). This variable was also noted in the Peruvian case. The licit cultivation alternative to coca leaf generated job opportunities for the peasant workforce and reversed the polarity of the feedback between these variables, changing the general behavior of the system and eradicating the cultivation of coca leaves in San Martin.

Social and academic education intervenes in 14 loops of the system, representing 41.2% of the total. The participation of Swiss society in the referendums allowed by its political system—and the relatively small size of its population—also implies the value of knowledge of the fundamentals of national problems through formal education and media outreach. This involvement impacted the various votes that led to the integration of the four-pillars policy into Swiss legislation. The Peruvian case also illustrates the importance of education in solving the drug problem. The Peruvian central government recognized that it did not have sufficient knowledge of the San Martin problem and decentralized decision-making regarding investment management in alternative crops. The specific measures to manage these crops were adopted under the responsibility of the local government and the peasant representations. The practical education of these local actors in the socio-economic issues of the region allowed them to make decisions with greater probabilities of success.

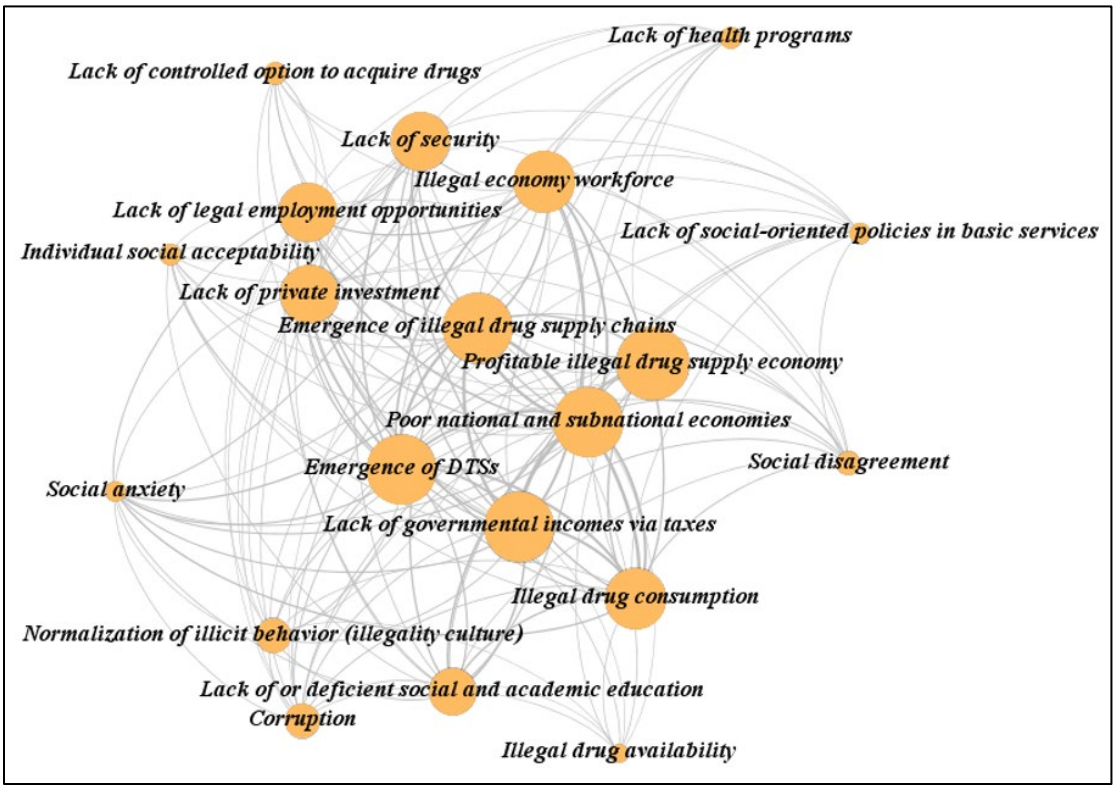
Among the variables with minor intervention in the 34 loops of the system are lack of security (in 13 loops), social anxiety (in 11 loops), and the lack of private or non-governmental investment (in 9 loops)—the first, as a causal variable of the last two. Of these variables, non-governmental investment stands out. It was used as a leverage point in the Peruvian case once other countries and international organizations found the conditions of security and viability acceptable for investing in the San Martin region. Corruption—intervening in 6 of the 34 loops—resulting from the economic power of the illegal economy (in 12 loops) are variables whose interrelationship is documented in the case of Mexico in the 1930s, when the first entrepreneurs in the drug business got involved in politics to make their businesses more successful. Since then, the normalization of illicit behavior (a variable that occurs in 5 of the 34 loops of the system) increased, influencing the recruitment of individuals into the drug supply chain and the continuity of corruption.

The lack of public policies to provide basic services, health programs that address the prevention of drug use, and alternative drug treatment are variables that intervene in three of the 34 loops of the system. The first of these variables influenced the case of Brazil, limiting the access of the inhabitants of the favelas to basic services, creating conditions of social marginalization in which criminal groups developed. In the same case, the emergence of the DTSs and social exclusion also influenced the population's proclivity for illegal drug use. On the other hand, the Swiss government employed the last two variables—health programs and alternative drug treatment—to address heroin use. Finally, illegal drug availability and individual social acceptability also played a part in three of the 34 loops of the system. The first variable increased drug abuse among the inhabitants of the Brazilian favelas, while the second had the same effect among the Swiss youth.

The variables of the drug problem system can be considered nodes for the construction of a social network to appreciate their relative importance in terms of centrality (i.e., of the number and nature of connections they have within the network).[220] Figure 6 shows the social network where the size of the nodes—variables—depicts their

[220] Sean F. Everton, *Disrupting Dark Networks* (New York: Cambridge University Press, 2012), 207.

score in degree centrality representing their influence or power over other variables based on the count of their ties.[221]




The network was obtained from the affiliation matrix formed by the CLD's variables and loops (Table 1), using the variables as nodes.[222] The resulting network has a relatively high density (0.795), which indicates good interconnectivity between the variables (i.e., variations in one node have a significant impact on the rest of the variables).[223]

Figure 6. System's variables network

As shown in the shaded cells in Table 2, the ranking in Degree Centrality coincides with the ranking in frequency of the variable's intervention in the system's CLD loops in the first five and the last five variables. Numbers in parenthesis indicate the score of each variable in the correspondent parameter.

221 Daniel Cunningham, *Understanding Dark Networks: A Strategic Framework for the Use of Social Network Analysis* (Lanham, MD: Rowman & Littlefield, 2016), 88.

222 Everton, *Disrupting Dark Networks*, 104, 105.

223 Cunningham, *Understanding Dark Networks*, 88.

Table 2. Comparison of the variables' ranking

| Ranking | Frequency | Degree Centrality |
|---|---|---|
| 1 | Poor national and subnational economies (29) | Poor national and subnational economies (19) |
| 2 | Lack of governmental income via taxes (29) | Lack of governmental income via taxes (19) |
| 3 | Emergence of illegal drug supply chains (29) | Emergence of illegal drug supply chains (19) |
| 4 | Illegal drug consumption (26) | Emergence of DTSs (19) |
| 5 | Emergence of DTSs (23) | Illegal drug consumption (18) |
| 6 | Illegal economy workforce (19) | Profitable illegal drug supply economy (18) |
| 7 | Lack of legal employment opportunities (15) | Lack of legal employment opportunities (18) |
| 8 | Lack of or deficient social and academic education (14) | Lack of private investment (18) |
| 9 | Lack of security (13) | Lack of security (18) |
| 10 | Profitable illegal drug supply economy (12) | Illegal economy workforce (17) |
| 11 | Social anxiety (11) | Lack of or deficient social and academic education (16) |
| 12 | Lack of private investment (9) | Normalization of illicit behavior (illegality culture) (14) |
| 13 | Corruption (6) | Corruption (14) |
| 14 | Social disagreement (6) | Social anxiety (13) |
| 15 | Normalization of illicit behavior (illegality culture) (5) | Social disagreement (12) |
| 16 | Individual social acceptability (3) | Individual social acceptability (11) |
| 17 | Lack of social-oriented policies in basic services (3) | Lack of social-oriented policies in basic services (11) |
| 18 | Lack of health programs (3) | Lack of health programs (10) |
| 19 | Illegal drug availability (3) | Illegal drug availability (9) |
| 20 | Lack of controlled option to acquire drugs (3) | Lack of controlled option to acquire drugs (9) |

## C. THE SYSTEM OF THE DRUG PROBLEM IN MEXICO

The case of Mexico shows the confluence of different variables from Brazil and Peru's case studies. The Brazilian case has in common with Mexico the trafficking of drugs produced in other countries—such as cocaine from South America and fentanyl from Asia—the pervasiveness of DTSs and other criminal groups involved in international drug supply chains, the inability to control related criminal activities, and corruption. Furthermore, Mexico and Brazil have the same problem of gaps in government presence that DTSs and other criminal groups have occupied to attain social capital. With the Peruvian case, the common variable is the large peasant labor force involved in the cultivation of illicit crops. The Brazil and Peru cases share with Mexico's case the lack of governmental economic autonomy for implementing policies targeting the drug problem. Additionally, in Mexico, there is the problem of a large number of DTSs whose members—together with the peasant, money laundering, and clandestine laboratories labor force—make up the illegal drug economy's workforce.

Conversely, unlike Switzerland and Brazil, the indices of national drug consumption and their effects are still not significant in Mexico's drug problem system. However, the demand for drugs in other countries is a driving force in the Mexican system. Furthermore, drug consumption in Mexico could yet become more prominent in the system's behavior.

On the other hand, consistent with the WD strategy, efforts and resources in Mexico have been mainly oriented toward disrupting drug supply chains. The specific actions have included operations against the leadership and operational structures of the DTSs and activities for the eradication of marijuana and poppy crops and the interdiction of drug shipments. These activities have been supported significantly by financing from the Merida initiative.

Regarding the limitations to modify the behavior of the system, the variables associated with the state's economic capacity and drug consumption are beyond the reasonable control of the Mexican government in the short term. Due to the recent COVID pandemic, the Mexican economy has been affected significantly, with no immediate

recovery in sight.[224] This situation will force the Mexican government to selectively direct its resources into priority programs to mitigate the impact on family economies. Regarding illegal drug use, the demand it represents is not significant at the national level. Therefore, measures to reduce drug abuse are beyond the reach of the Mexican government. This situation would rule out the first five variables in the ranking of frequencies and degree centrality (see Table 2) as options for the Mexican government to address the drug problem.

On the contrary, the variables associated with labor supply competition between DTSs and the legal market—including alternative crops in poppy and marijuana production areas—rank high in the score of degree centrality. An intervention by the Mexican government in the variables associated with the supply of jobs and lack of security would balance the outcomes of associated loops with a greater probability of modifying the system's behavior. The last would imply directing governmental and non-governmental resources—such as private ones and those of the Merida initiative—to create legal jobs reducing the workforce available for the drug supply chain. Taking the general CLD of the drug problem as a model (Figure 4) to represent the system in Mexico, the variable "poor national and subnational economies" is replaced by "selective governmental investment," and the variable "lack of private investment" is replaced by "non-governmental investment." These changes are shown in Figure 7 colored red, while the green color represents the feedback and loops reversing their polarity due to said changes.

[224] Mariano Sanchez-Talanquer et al., *Report on the Economic Impact of Coronavirus Disease (COVID-19) on Latin America and the Caribbean* (Santiago, Chile: CEPAL, Economic Commission for Latin America and the Caribbean, 2020), https://www.cepal.org/en/publications/45603-report-economic-impact-coronavirus-disease-covid-19-latin-america-and-caribbean.

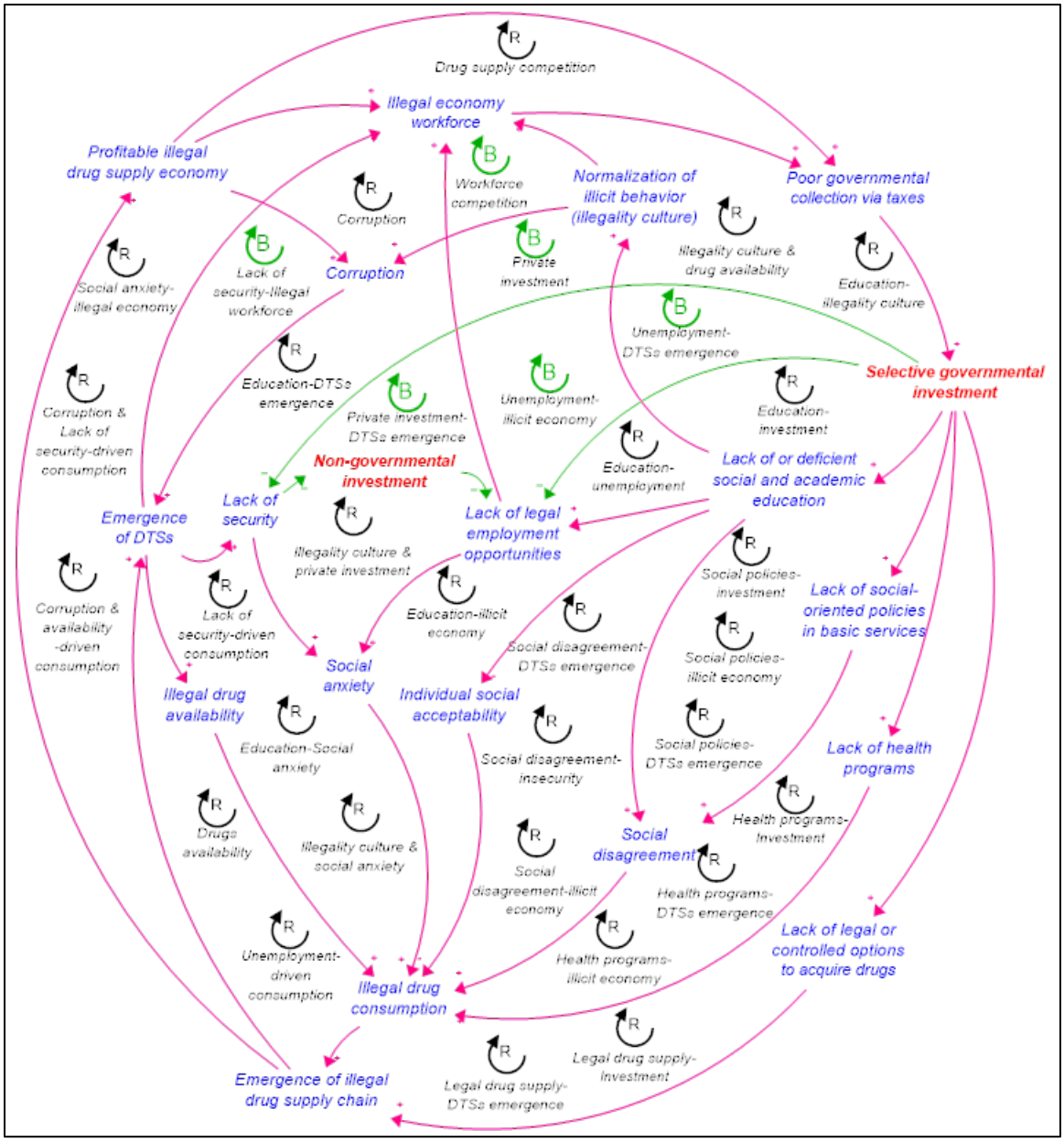



Figure 7. CLD of the drug problem in Mexico. Intervention in the most influential variables

As mentioned in Chapter II, the feedback's negative polarity implies that an increase/decrease in the cause impacts the dependent variable in the opposite direction (decrease/increase, respectively). Figure 8 details the loops switching polarity due to the change in the selected variables (color red). Feedbacks represented in the color green are those changing polarity.

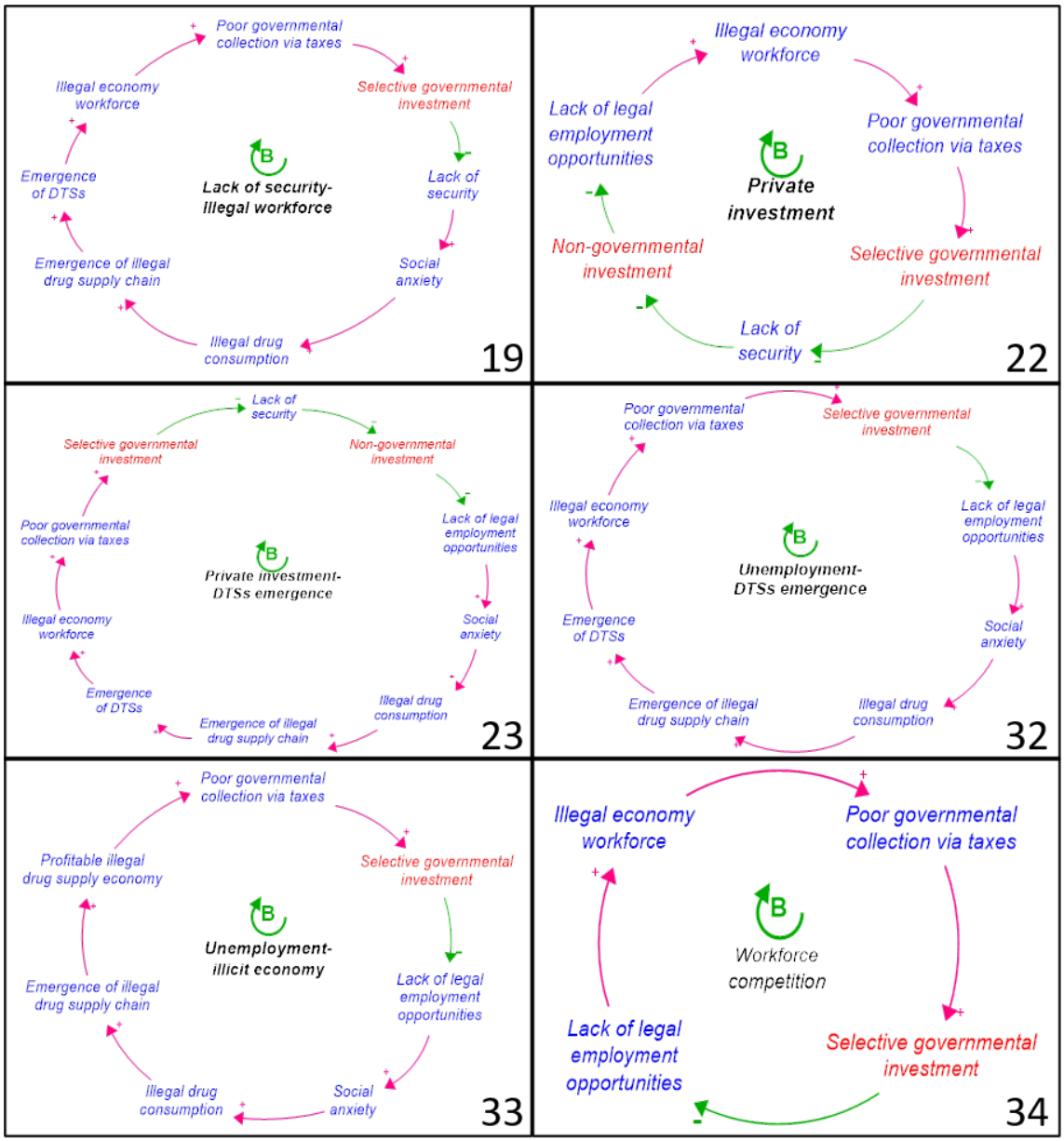



Figure 8. Loops reversing polarity

In the particular case of the affected loops, it is assumed that an increase in government investment could decrease the lack of security (loops 19, 22, and 23). Likewise, a decrease in lack of security would increase non-governmental investment (loops 22 and 23). Consequently, the increase in non-governmental investment coupled

with an increase in government investment would decrease the lack of legal employment opportunities observed in all loops except 19.

Finally, the change expected in the system's behavior is an increase in the legal labor supply, such as cultivation of alternative legal crops, that would divert members of the workforce from the illegal drug supply chains and gradually lead to higher tax collection to benefit the national economy. However, loops 19, 23, 32, and 33 demonstrate that the polarity shift would also impact national drug use indices and, consequently, the emergence of illegal drug supply chains and DTSs. In these strategies, the armed forces' participation could support the National Guard and civil authorities in law enforcement functions.

# VI. CONCLUSIONS

Using systems theory tools, this thesis has fulfilled its objective of proposing a model to explain the underlying system dynamics of the drug problem in Mexico and potential leverage points to reduce the problem through changes in public policy. The review of the historical factors of the problem in different fields of activity and human knowledge have made it possible to identify the variables that comprise the structure of the problem as a system. Additionally, the investigation of the case studies provided a thorough understanding of the feedback among these variables. Knowledge of the variables and their feedback facilitated the construction of the causal loop diagram of the drug problem system that describes the structure and behavior of the system in general. Furthermore, the social network analysis tools facilitated the determination of the most influential variables in the system's behavior. As a result, the system of the particular case of Mexico was graphically represented, indicating specific leverage points that could mitigate the effects of the drug problem for the state.

## A. CONCLUSIONS

This thesis confirms the advantages of exhaustively studying a problem in order to offer sound alternative solutions. In their role as problem solvers, systems thinkers must provide decision makers with reliable tools to implement strategies that have the greatest probability of success. From this perspective, the study of the drug problem cannot be limited to fragmented analyses that offer short-term solutions based on simplistic heuristics. This type of solution to date has only managed to increase the resilience of illegal drug supply chains to the detriment of the resilience of individuals, states, and the international order. The study of the cases of Mexico and Brazil demonstrated this. On the other hand, the cases of Switzerland and Peru exemplify the advantages of an adequate approach for making sense of the drug problem and the value of double-loop learning.

The alternatives with the greatest probability of success for addressing the drug problem in Mexico are the generation of job opportunities and the mitigation of security problems, requiring governmental and non-governmental capital. The activation of these

leverage points will reduce the availability of workforce members for the illegal drug supply chain and diminish one of the causes of illegal drug use nationally.

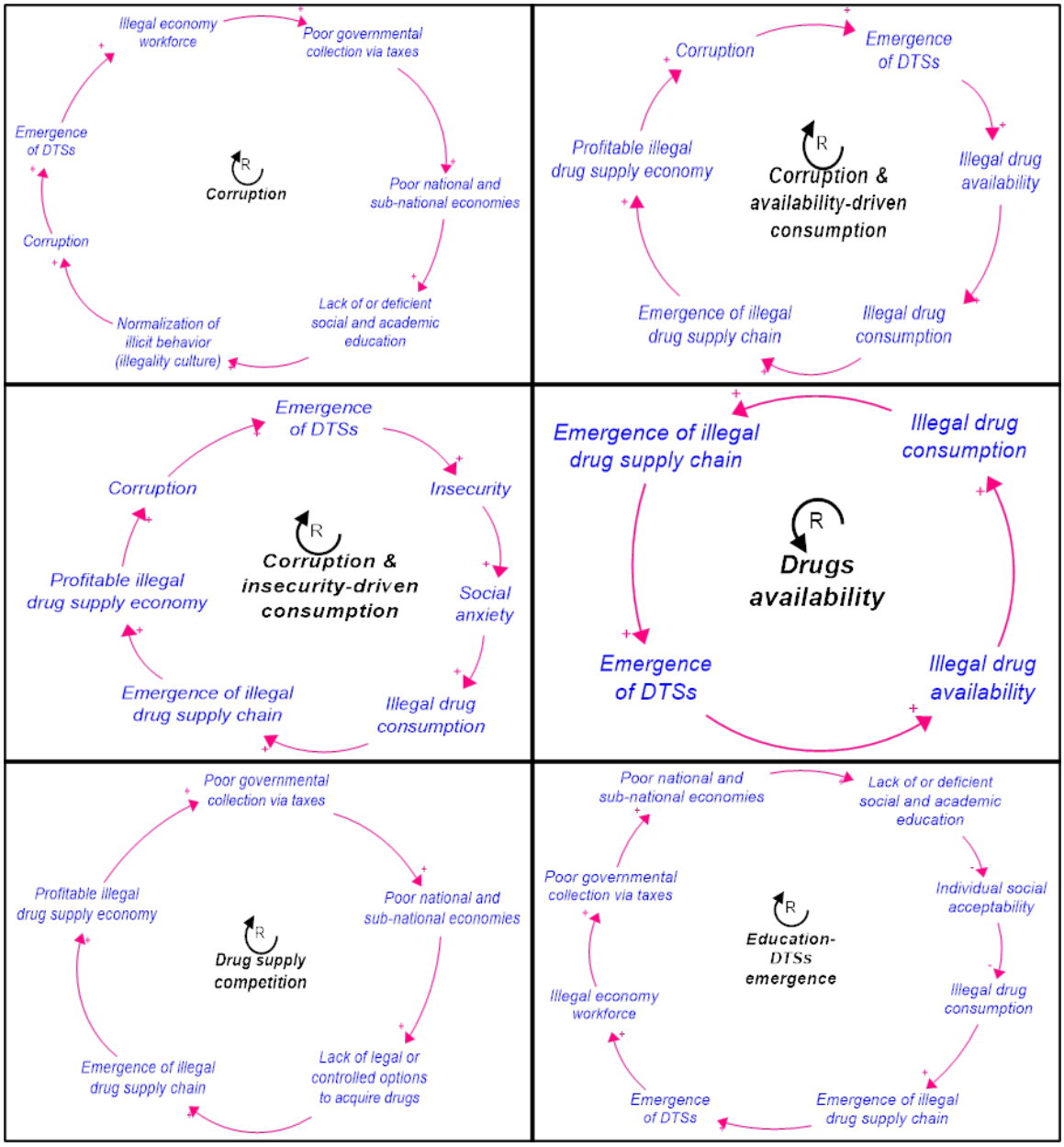
## B. RECOMMENDATIONS FOR FURTHER INVESTIGATION

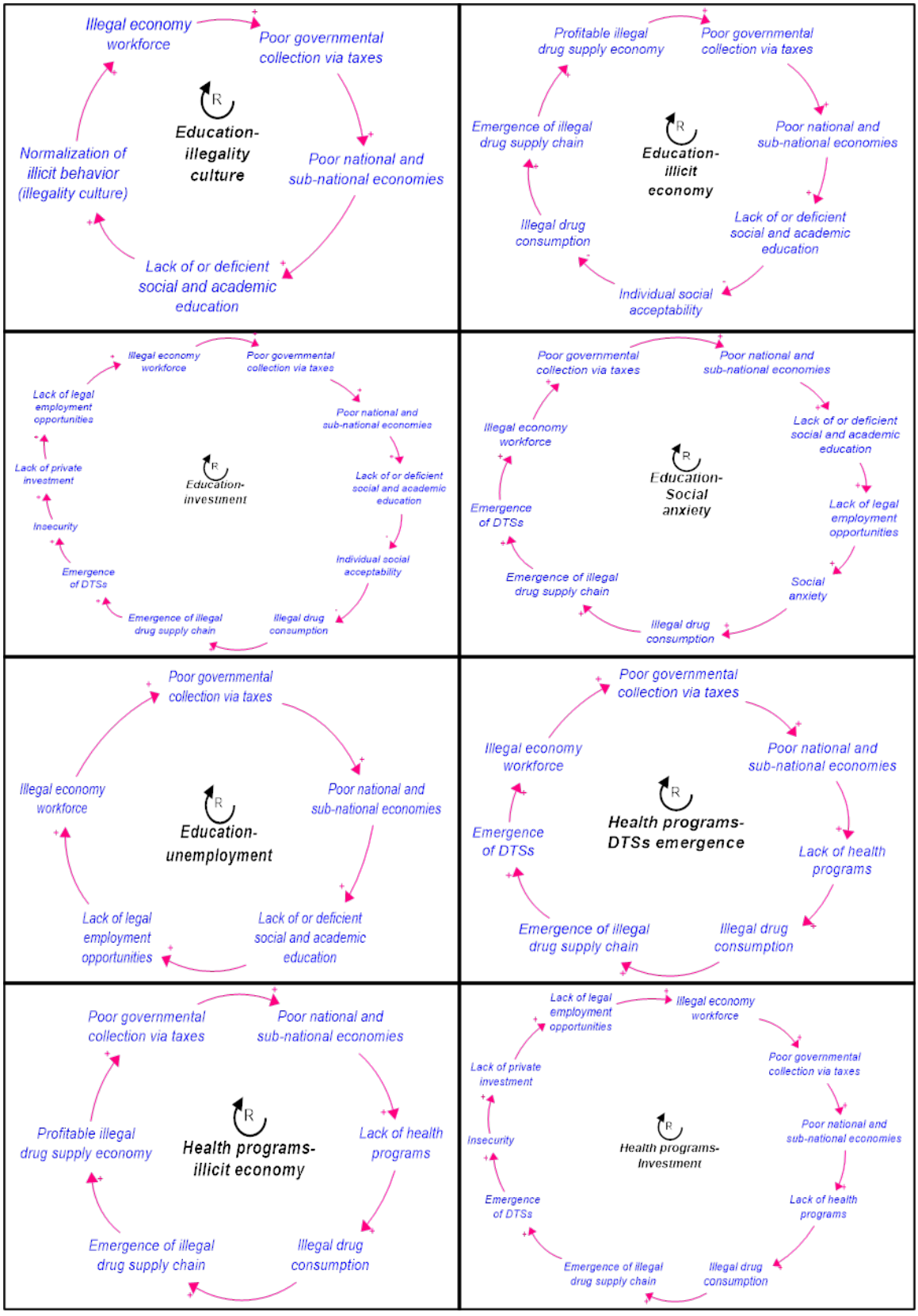
This thesis takes the first step to formalize the holistic study of the drug problem in Mexico from a system dynamics perspective. Future systems modeling research is required to determine specific strategies and plans under particular time and space considerations. For example, the first actions under the proposed scheme may be limited to a municipality with low levels of security where there is the possibility of diverting workforce members from organizations associated with the drug supply chain. The experiences of the implemented plans could be incorporated into the double-loop learning process to improve strategies and decisions gradually, and successful strategies could be replicated in other municipalities.

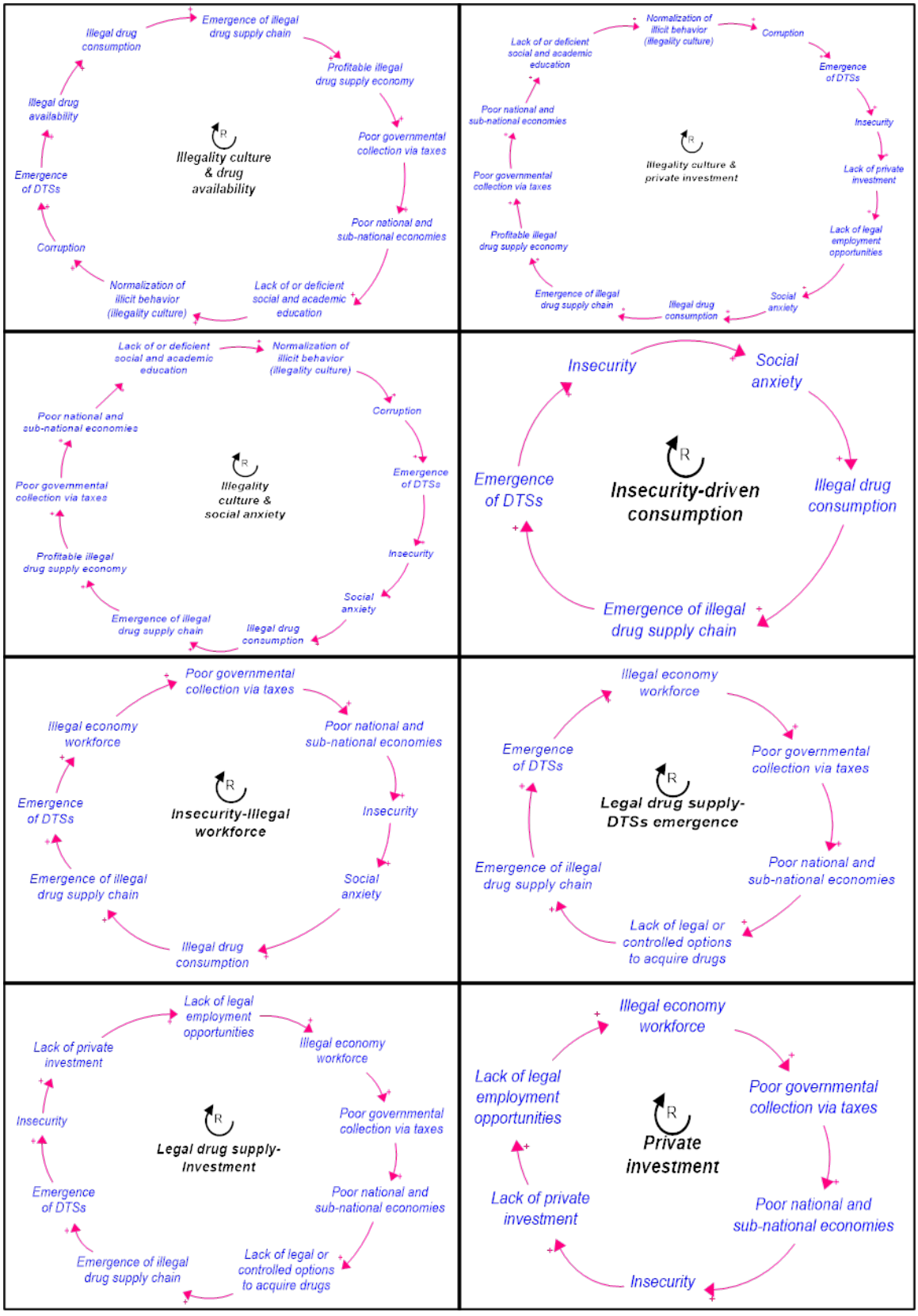
Another pending issue is the determination of the stakeholders that should be involved. For example, the armed forces could support the National Guard and civil authorities to create security conditions for private investment and the creation of sources of employment. Nevertheless, the implementation of job creation programs—such as alternative crops—will have to be left to other governmental secretariats. Finally, the participation of the Special Forces must also be defined. In addition to operations in support of the judicial authorities to capture relevant targets, the Special Forces could carry out information operations where the strategies are implemented.

# APPENDIX. DRUG PROBLEM CLD'S LOOPS

The following figures depict each of the 34 loops contained in the CLD of the drug problem in Mexico. In the loops' initial state, all of them exhibit a reinforcing behavior.




Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Normalization of illicit behavior (illegality culture)
Education-illegality culture
Profitable illegal drug supply economy
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Individual social acceptability
Illegal drug consumption
Emergence of illegal drug supply chain
Education-illicit economy
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Individual social acceptability
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Insecurity
Lack of private investment
Lack of legal employment opportunities
Education-investment
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Lack of legal employment opportunities
Social anxiety
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Illegal economy workforce
Education-Social anxiety
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Lack of legal employment opportunities
Illegal economy workforce
Education-unemployment
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of health programs
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Illegal economy workforce
Health programs-DTSs emergence
Lack of legal employment opportunities
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of health programs
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Insecurity
Lack of private investment
Health programs-Investment
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of health programs
Illegal drug consumption
Emergence of illegal drug supply chain
Profitable illegal drug supply economy
Health programs-illicit economy


Emergence of illegal drug supply chain
Profitable illegal drug supply economy
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Normalization of illicit behavior (illegality culture)
Corruption
Emergence of DTSs
Illegal drug availability
Illegal drug consumption
Illegality culture & drug availability
Normalization of illicit behavior (illegality culture)
Corruption
Emergence of DTSs
Insecurity
Lack of private investment
Lack of legal employment opportunities
Social anxiety
Illegal drug consumption
Emergence of illegal drug supply chain
Profitable illegal drug supply economy
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Illegality culture & private investment
Lack of or deficient social and academic education
Normalization of illicit behavior (illegality culture)
Corruption
Emergence of DTSs
Insecurity
Social anxiety
Illegal drug consumption
Emergence of illegal drug supply chain
Profitable illegal drug supply economy
Poor governmental collection via taxes
Poor national and sub-national economies
Illegality culture & social anxiety
Insecurity
Social anxiety
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Insecurity-driven consumption
Poor governmental collection via taxes
Poor national and sub-national economies
Insecurity
Social anxiety
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Illegal economy workforce
Insecurity-Illegal workforce
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of legal or controlled options to acquire drugs
Emergence of illegal drug supply chain
Emergence of DTSs
Legal drug supply-DTSs emergence
Lack of legal employment opportunities
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or controlled options to acquire drugs
Emergence of illegal drug supply chain
Emergence of DTSs
Insecurity
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Illegal economy workforce
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Poor national and sub-national economies
Insecurity
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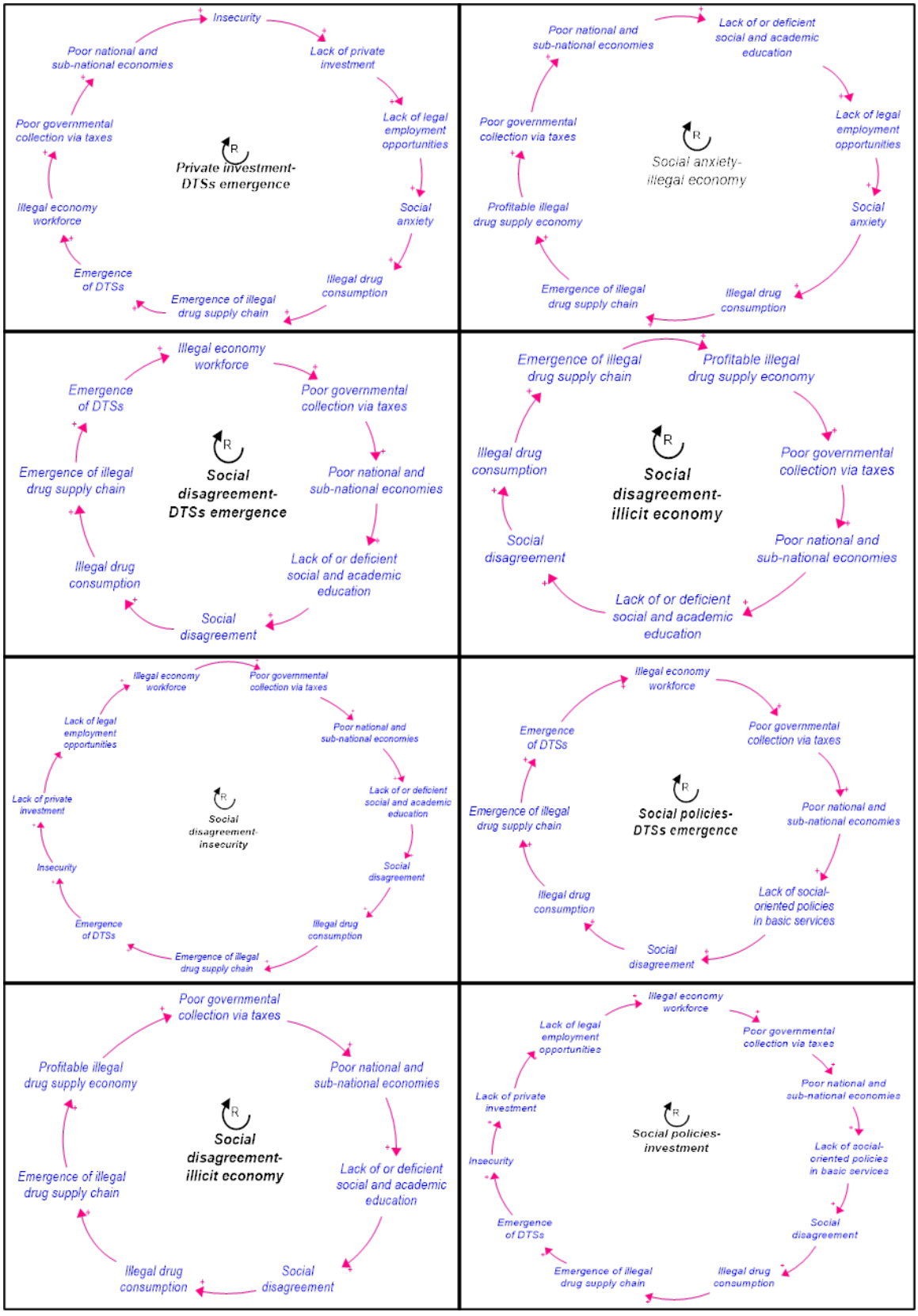
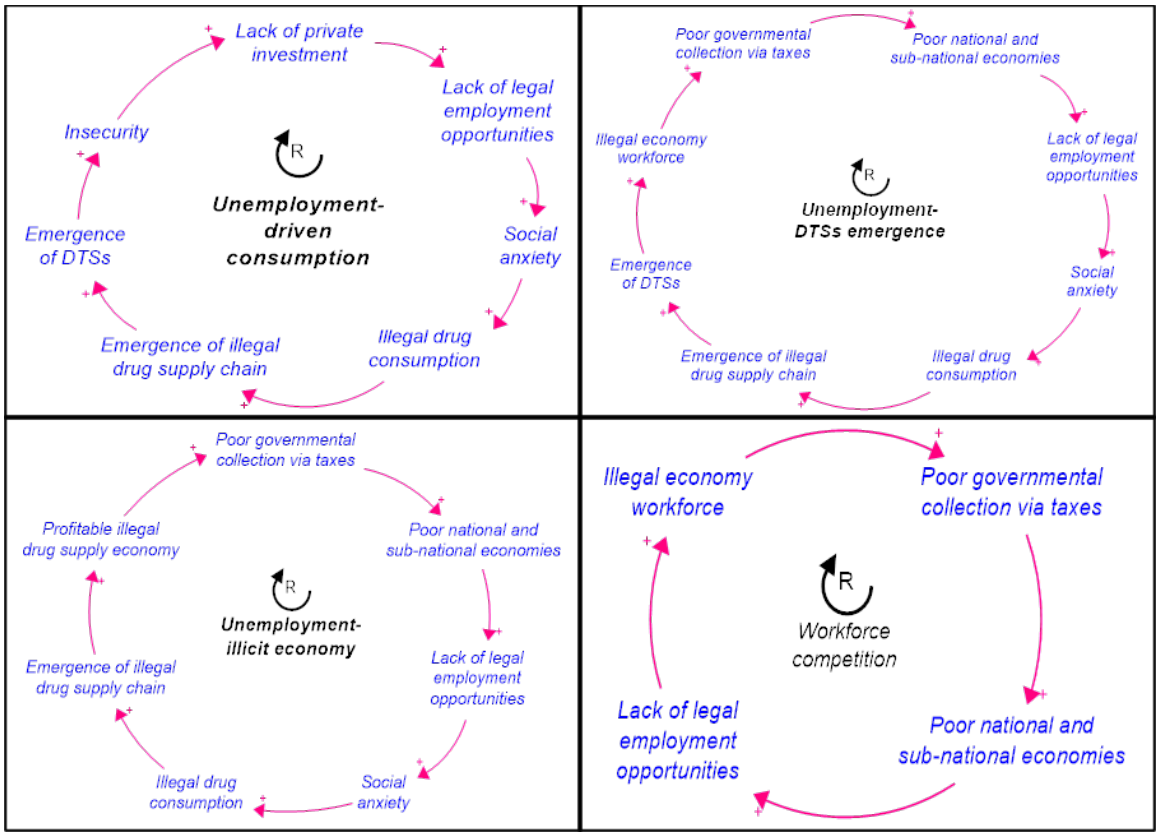
Lack of legal employment opportunities
Private investment


Insecurity
Lack of private investment
Lack of legal employment opportunities
Social anxiety
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Private investment-DTSs emergence
Poor national and sub-national economies
Lack of or deficient social and academic education
Lack of legal employment opportunities
Social anxiety
Illegal drug consumption
Emergence of illegal drug supply chain
Profitable illegal drug supply economy
Poor governmental collection via taxes
Social anxiety-illegal economy
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Social disagreement
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Social disagreement-DTSs emergence
Emergence of illegal drug supply chain
Profitable illegal drug supply economy
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Illegal drug consumption
Social disagreement
Social disagreement-illicit economy
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Social disagreement
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Lack of legal employment opportunities
Lack of private investment
Insecurity
Social disagreement-insecurity
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Social disagreement
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Social policies-DTSs emergence
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of social-oriented policies in basic services
Social disagreement
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of or deficient social and academic education
Social disagreement
Illegal drug consumption
Emergence of illegal drug supply chain
Profitable illegal drug supply economy
Social disagreement-illicit economy
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of social-oriented policies in basic services
Social disagreement
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
Insecurity
Lack of private investment
Lack of legal employment opportunities
Social policies-investment


Lack of private investment
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Unemployment-driven consumption
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of legal employment opportunities
Social anxiety
Illegal drug consumption
Emergence of illegal drug supply chain
Emergence of DTSs
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Unemployment-DTSs emergence
Poor governmental collection via taxes
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Social anxiety
Illegal drug consumption
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Profitable illegal drug supply economy
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Unemployment-illicit economy
Illegal economy workforce
Poor governmental collection via taxes
Poor national and sub-national economies
Lack of legal employment opportunities
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Workforce competition

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