



HEAD FIRST

A CASE STUDY
OF VIETNAM'S
MOTORCYCLE HELMET
CAMPAIGN

CONTRIBUTORS AND ACKNOWLEDGEMENT

AIP Foundation and FIA Foundation coordinated the production of this report and acknowledge, with thanks, all those who have contributed to its preparation, particularly:

Principal writer: Louise Goldman

Additional contributors: Pham Thi Lan Anh, Saul Billingsley, Pham Van Chien, Dr. Nguyen Duc Chinh, Greig Craft, Dr. Pham V. Cuong, Do Thi Diep, Nguyen Thu Ha, Hoang Thanh Hoa, Tran Van Hoc, Bui Thi Diem Hong, Dr. Khuat Viet Hung, Nguyen Manh Hung, Nguyen Thi Huong, Hoang Thi Na Huong, Nguyen Thi Thu Huyen, Colonel Duc Le, Bui Huynh Long, Vu Duc Minh, Tran Thi Nhai, Nguyen Van Nhi, Stefan Phang, Dinh Kim Phuong, Erin Sauber-Schatz, Ph.D., M.P.H., Mirjam Sidik, Dr. Terry Smith, Truong Thi Nguyet Trang, & everyone from FIA Foundation.

Literature review and research: Louise Goldman, Roxanne Gleeson, Tran Thi Bich Lien, Peggy Moriarty, Ryan Stannard, Le Thi Thuong, Mai Thi Hoai Son .

Editing: Molly Ellison, Samantha Serafica

Design: John Pap, Diana Fauner, Nguyen My Linh , Lily O'Connell.

Photography: AIP Foundation, César López Balan, FIA Foundation, Shutterstock, Richard Stanley.

HEAD FIRST

A CASE STUDY OF VIETNAM'S MOTORCYCLE HELMET CAMPAIGN

CONTENTS

FOREWORD - GREIG CRAFT, AIP FOUNDATION	1
FOREWORD - SAUL BILLINGSLEY, FIA FOUNDATION	3
VIETNAM'S DECADE OF ACHIEVEMENT	5
BACKGROUND	9
AN EMERGING PUBLIC HEALTH CRISIS	11
WHY HELMETS MATTER	17
ADVOCATING FOR CHANGE	23
A TURNING POINT	33
A UNIVERSAL HELMET LAW	39
IMMEDIATE AND LONG-TERM IMPACT OF HELMET USE	43
PROTECTING THOSE WHO NEED IT MOST	63
A QUESTION OF QUALITY	77
SUSTAINING THE SUCCESS	85
CONCLUSION AND RECOMMENDATIONS	95
REFERENCES	101
ABOUT	105



VIETNAM'S DECADE OF ACHIEVEMENT P5



WHY HELMETS MATTER P17



PROTECTING THOSE WHO NEED IT MOST P63



BACKGROUND P9



AN EMERGING PUBLIC HEALTH CRISIS P11



ADVOCATING FOR CHANGE P23



IMMEDIATE AND LONG-TERM IMPACT OF HELMET USE P43



SUSTAINING THE SUCCESS P85



CONCLUSION AND RECOMMENDATIONS P95



FOREWORD

When I first arrived in Vietnam in 1989, I found a country at a pivotal moment, soon to experience unprecedented economic and political development that would lead it to becoming one of the fastest-growing economies in Southeast Asia. As Vietnam opened its doors to the world, the dangers of rapid motorisation became apparent. Without helmet standards nor mandatory wearing, countless people were dying or suffering brain damage daily on the roads. This presented a unique opportunity to make an impact on a 'hidden' public health crisis that is far too often overlooked, despite incalculable human tragedy and economic loss.

The solution, much like the problem, was simple - by wearing helmets, life-threatening injuries and deaths could be prevented. A 'vaccine' of sorts was urgently needed to stop the slaughter on the roads.

Drawing on years of experience in social entrepreneurship and business, we challenged ourselves to determine how best to increase helmet quality and use at an affordable cost. After measuring 5000 heads to find an appropriate fit for Asians, the world's first 'tropical' helmet was designed. It met our key criteria to be climate-appropriate, lightweight, and affordable.

We realised that importing the helmets would not be financially sustainable in the long term, so decided to establish our own factory in Vietnam. By 2002, our helmet plant, Protec, was operational and soon established itself as a producer of quality helmets.

Our signature *Helmets for Kids* program was a way to reach Vietnam's youngest and most impressionable generation of road users, while at the same time putting a spotlight on a key aspect of road crashes. Supported by generous donors and public-private partnerships, *Helmets for Kids* enabled us to provide primary school students with quality helmets and other educational outreach.

We knew that to have a nationwide impact we needed to go beyond the schoolyard. In 2006 we produced a hard-hitting campaign: "*Wear a Helmet. There are*

No Excuses." with the backing of the Vietnam Helmet Wearing Coalition - a group of concerned helmet use advocates. The campaign struck a chord with the public, and with the support of the Vietnam government, the campaign was aired on national TV with additional messages reaching the public via bus ads, billboards, and public youth concerts. According to senior government officials, the campaign was pivotal in influencing and advancing their plans to implement a national helmet requirement.

On December 15, 2007, the Vietnamese government passed a universal helmet law. The helmet-wearing rate increased significantly from as low as 6% on city roads to more than 90% - overnight.

Ten years after the passage of Vietnam's helmet law, the country has saved an estimated **\$3.5 billion USD** in medical costs, lost output, and pain and suffering. **An estimated 500,000 head injuries and 15,000 fatalities have been prevented due to increased helmet use.** However, our work is not finished.

As countries in the developing world continue to experience rapid economic shifts and turn to motorised mobilisation, road crashes will continue to harm innocent people. Through the efforts of organisations like AIP Foundation and FIA Foundation, the world is understanding that there are solutions.

Vietnam's story provides an example of what is possible when a dedicated government, NGOs, and public and private partners collaborate for a common objective. With concerted effort, strong political will, and the support of local and international partners at all levels, we *can* succeed.



Greig Craft
Founder and President, AIP Foundation



FOREWORD

Every motorcycle rider and passenger should wear a protective crash helmet.

This seems a statement of common sense and something that should be relatively easy to achieve. Surely it is in the interests of riders and their families; of the police and health services that have to deal with the immediate aftermath of traffic crashes involving serious head injuries; of the governments, insurance companies or families themselves that have to pick up the financial cost?

Yet, across the world, millions of motorcyclists ride unprotected. Fewer than fifty countries have comprehensive legislation governing use and standards of motorcycle crash helmets. Without law, enforcement agencies are powerless to prevent hundreds of thousands of entirely preventable deaths and serious injuries. Vast swathes of Asia, Africa and the Americas are still failing to act.

Now, as part of its leadership in attempting to achieve the Sustainable Development Goal health target for road fatalities, the World Health Organization has persuaded governments to adopt a voluntary target that, by 2030, will aim to increase the proportion of motorcycle riders correctly using standard helmets to close to 100%.

And in looking for strategies, ideas and experience in planning how to achieve this target, countries should start by looking at Vietnam.

Vietnam provides an important case study in government determination, sustained over the long term, to tackle motorcycle deaths and injuries. This report shows how to assemble the essential ingredients for success: a clear objective allied to a plan of action, supported by multi-sectoral cooperation; international donor and expert support; active engagement of civil society; mobilisation of communities; and – above all – political courage and commitment.

Ten years on from the introduction, in December 2007, of a universal helmet law, Vietnam's motorcycle traffic

injury epidemic is by no means solved (and part of the value of this report is in showing where mistakes were made and overcome, and how arduous and long the struggle for universal helmet use can be). But the country's very real success can be measured in tens of thousands of deaths prevented, hundreds of thousands of serious injuries avoided, and billions of dollars saved. The motorcycle helmet, with associated measures to ensure its effective use, is a public health vaccine that will pay for itself many times over. The Vietnam experience demonstrates how and why other countries must act, and with urgency.

For the FIA Foundation, our partnership with AIP Foundation and with Vietnam began in 2005 when we sponsored a fact-finding road safety visit to the UK for Vietnamese transport officials. But our engagement with both this wonderful country and this farsighted, results-driven and highly effective NGO really got going only in 2008, a few months after the landmark 2007 legislative victory, when we arranged for our goodwill ambassador, movie actress Michelle Yeoh, to visit Hanoi to help highlight the need for child passengers to wear motorcycle helmets. From that visit was launched a partnership in we have sought to assist AIP Foundation in its efforts to maintain the promise and momentum of Vietnam's effort to protect its people, and to help spread the lessons that have been learned across the globe.

A key lesson from Vietnam's decade of achievement since 2007 is this: passing the legislation is only the beginning of the story, the start of the really hard work of implementation. So for all those other countries that continue to procrastinate the message from this case study is clear – act now. Your people are dying and 2030 is just around the corner.



Saul Billingsley
Executive Director, FIA Foundation

VIETNAM'S DECADE OF ACHIEVEMENT (2007 - 2017)



Motorcycles have ruled Vietnam's streets for nearly two decades. Ever since the country experienced staggering economic growth in the mid-1990s, these two-wheelers have often been the family vehicle. But, this period of rapid motorisation had deadly repercussions. Road crashes have claimed thousands of lives and have left even more injured.

In many cases, these devastating consequences are associated with traumatic brain injuries. In the early years of motorisation, helmet wearing in Vietnam was dangerously low. Many people simply didn't understand the importance of wearing a helmet or the protection they offered. This lack of knowledge, combined with low access to quality helmets in the Vietnamese marketplace, had deadly consequences.

So, in 2007 – after years-long advocacy efforts championed by diverse stakeholders from around the country and the globe – the Vietnamese government took action to make its citizens safer.

On 15 December 2007, the universal helmet law went into effect. This required for the first time that motorcycle drivers and passengers wear helmets while travelling on all roads throughout the country. The effects were immediate. Adult helmet wearing rates in four major cities – Hanoi, Danang, Can Tho, and Ho Chi Minh City – surged to more than 90% (Pervin et al., 2009). In comparison, prior to the legislation this number ranged between 6% and 10% on city roads (AIP Foundation & Vietnam National Economics University, 2007; Hung et al., 2006).

In 2008, the country saw a **24% decrease in injuries** and a **12% decrease in fatalities** due to road crashes generally. Over the ten years since the law was introduced, an estimated **500,000 head injuries** and **15,000 fatalities** have been averted due to increased helmet use. This has also translated to financial gains, saving an estimated **\$3.5 billion USD** in medical costs, lost output, and pain and suffering.

The Vietnamese government began attempts to enact helmet safety legislation as early as 1995. But, these initial efforts were accompanied by ineffective enforcement, confusing regulations, and sub-par awareness raising activities. The lead up to the 2007 universal helmet law was different. Other stakeholders from both the Vietnamese and international communities began advocating to the government in the early 2000s. A combination of community education programs and intensive research projects, complemented by a nationwide awareness campaign highlighting the real-life consequences of not wearing a helmet, put enough pressure on the government to take charge of the situation.

Despite the successes ushered in by the universal helmet law, other issues have recently been brought to light. Substandard helmets are commonly found on the market, so consumers often unknowingly purchase poor quality products that offer inadequate protection in the event of a crash. Child helmet wearing also lags behind. In the decade since 2007, local and international stakeholders ranging from global philanthropies, to provincial education departments, to multinational companies have weighed in and helped address these problems.

Helmet quality was an issue of concern well before the universal helmet law. In the early 2000s, the Vietnamese government worked with international experts to develop a helmet standard, specifically designed for the Vietnamese context. In parallel, Protec, a social enterprise helmet factory, was born. The company developed a tropical style motorcycle helmet that was comfortable for the wearer in Vietnam's hot, humid climate, while also being protective and affordable. Despite such robust efforts, substandard helmets are still readily available at storefronts and markets. A 2011 study found that only 18.9% of 581 exchanged helmets met quality standards, with the majority failing on crucial impact testing (WHO & Hanoi School of Public Health, 2013).

Though adult helmet wearing rates have remained high over the past 10 years, child helmet compliance has been much lower in comparison. Prior to 2007, an estimated 5.23% of Vietnamese children wore helmets



(AIP Foundation & Vietnam National Economics University, 2007). In 2011, this number in Vietnam's three major cities was only 18%. Key international players, including philanthropies, multilateral agencies, and private companies, have worked closely with local nonprofits and government departments to address this crisis. In 2014, the Vietnamese government launched its *National Child Helmet Action Plan (NCHAP)*. As of May 2016, child helmet wearing rates in the country's three major cities had increased to 57% (AIP Foundation, 2016).

Following Vietnam's example over the past decade, the global "Decade of Action for Road Safety" (2011-2020) was launched which outlines a five-pillar framework to achieve the global target of reducing road deaths from nearly 1.3 million per year to under 1 million per year by 2020. Since then, global commitment has been made to an even more ambitious target under the Sustainable Development Goals to halve the number of global deaths and injuries from road traffic crashes to 600,000 per year by 2020 (FIA Foundation, n.d.). However, unlike Vietnam's pivotal example of what can be achieved in helmet safety by a group of dedicated, diverse change-makers - global efforts have been predominantly insufficient - marred by a lack of funding and prioritisation to address the escalating global public health crisis, and failing to keep pace with the rapid rate of motorisation, particularly in low- and middle-income countries.

The 2007 universal helmet law has saved tens of thousands of lives, but it hasn't solved Vietnam's road safety crisis. The country's roads still remain dangerous for many. Ensuring that every road user is equipped with an affordable quality helmet is challenging. But, the 2007 legislation has acted as a catalyst in local, national, and global communities to spur investing in solutions to the road safety epidemic. Other countries facing similar road crises also look to Vietnam as a model for effecting lasting change.

BOX 1:

CASE STUDY: A DECADE OF LOSS - THE STORY OF LE XUAN HAN



Ten years ago, Nguyen Thi Xuan Diem's life was forever altered when her seven-year-old daughter, Le Xuan Han, was killed in a road crash in Ho Chi Minh City. That day, the family was driving on their motorcycle to visit their grandmother when a drunk motorcyclist smashed into them. The impact of the crash ripped the family from their motorcycle, and Han slammed her head on the road. She was not wearing a helmet. The little girl died at the scene of the crash. The rest of the family also suffered severe injuries. Diem's younger

daughter, Minh Nhu, suffered a concussion, and Diem lay in a coma for two weeks - tragically, only learning about her daughter's death after her funeral had already taken place.

Now, almost ten years after the crash, Han's mother Diem still focuses on how the outcome could have been different. On that day, Han reminded her parents that she and her sister must wear a helmet, but Diem and her husband were in a rush and ignored the advice.

Diem regrets not having been more careful about the safety of her daughters. Speaking about her lack of awareness of helmet safety at the time, Diem said: "The new helmet laws had just passed, only one month and five days before the crash. At that time, I did not recognise the importance of wearing a helmet, I only thought about wearing a helmet to avoid being fined."

However, the collision that day has left life-long impacts on the family. Diem's husband has had five surgeries and still experiences lingering physical pain since that day. He often struggles for breath and is not able to speak for a sustained period of time. Both Diem's face and Minh Nhu's head bear large scars. The family's medical costs amounted to almost \$2,500 USD, and Han's funeral cost to \$300 USD. In 2008, monthly household income per head in Vietnam was only 995,200 VND, approximately \$44 USD, which meant these expenses were equal to almost three years of income for the average Vietnamese family at the time (Nguyen, 2011). Fortunately, relatives helped pay a large portion of these expenses, and Diem's family also received monetary assistance from AIP Foundation to cover her additional debt.

The crash not only turned Diem into the caregiver of the family, but also the primary breadwinner. She now has to support her injured husband and young daughter. Previously, Diem's husband was a builder, an occupation requiring good physical health. His injuries prohibit him from returning to his previous employment and he has been forced to take a part-time job that is less intensive and not as well paid. Diem found a job in a factory two months after the crash, but has since opened a small store out of her house to sell rice and cosmetics.

Besides the physical injuries, Diem's family has undergone the emotional trauma of dealing with Han's death. Even more than a year after that terrible crash, Diem and her husband were still not able to accept the fact that their daughter was gone. They left Han's bed, with her pillow and blanket on it, untouched. Han's smile, her voice, and the memories of her will stay with her parents forever.



Minh Nhu, Han's younger sister, was also affected by her sister's death. Once, after seeing the neighbour's child playing with his sibling, Nhu said to her mother, "Oh, Mommy, look at that, it looks really fun." Diem realised at that moment the void left in Nhu's life by the death of her sister.

It took many years for Diem's family to even partially recover from the death of Han. "That hurt never completely heals, it will still be there until the day I die. Whenever I recall that moment, it seems like it happened just yesterday," Diem said. "Every day, when I am travelling on the road and see the parents that do not have their children wear helmets, all I want to do is run to them and remind them about the danger of travelling without helmets."

Diem decided to take action and share her personal story as a warning for others so that no family would have to suffer through the same pain. In 2008, she joined AIP Foundation's live road safety concerts in many provinces across Vietnam. Traffic police, singers, doctors, and road safety advocates all spoke, but Diem's compelling story drove home the reality of the message for the thousands in the audience. Speaking of her advocacy work to bring awareness to the importance of helmet safety, Diem said, "My hope is that my story will be a wake-up call to all parents, but even if it just affects one person's point of view, I will be satisfied."

BACKGROUND

Building a post-war economy

Today, Vietnam boasts one of the most rapidly developing economies in the world – the Southeast Asian nation’s GDP increased by 5.7% in the first six months of 2017 (The World Bank, 2017).

“Vietnam’s economy is strong, as a result of strong momentum of Vietnam’s fundamental growth drivers — domestic demand and export-oriented manufacturing,” Sebastian Eckardt, Lead Economist for the World Bank in Vietnam, said. As quickly as it seems to be surging, just 20 years ago the country was in a vastly different situation.

In the years following the American War – which ravaged the country for nearly two decades – the Vietnamese government focused its economy on industrialisation and limited foreign trade. Estimates vary, but anywhere from 800,000 to 3.1 million Vietnamese civilians and soldiers were killed during the conflict (Hirschman et al., 1995; Spector, n.d.). The government’s reforms aimed to create stability in a nation determined to start anew. But, the country’s economic growth was slow. This centrally planned economy limited entrepreneurship and ultimately stagnated growth (Bui, 2000). After 10 years of this, the government decided to take a new approach.

In 1986, the government implemented its “Doi Moi” reforms (Bui, 2000). This entailed establishing a free-market economy that welcomed foreign investment

and boosted the role of the private sector. The most intensive period of change took place from 1986 to 1991. By 1989, Vietnam had transformed into one of the three largest rice exporters in the world. When it restored relations with the United States in 1995, economic sanctions between the two countries ended. This put Vietnam on the path to even more impressive growth.

The “Doi Moi” period encouraged migration from rural to urban areas, which concentrated the country’s wealth in major cities (Rushing & Watts, 2005). Vietnam’s change in focus from an agriculture and industrial economy, to one based in business and capitalism shook up the family norms that had been in place for years in the country. Changes rippled throughout Vietnamese society.

These large-scale economic and societal advancements could also be seen in individual households. The number of poor households, judged by the country’s poverty standards, dropped from 28% in 1993 to 19.3% just three years later in 1996 (Thang, 2000). There were also significant boosts in the number of households with electricity, televisions, and radios. For the first time, many had disposable income to invest in larger purchases. So, as families spent more on new technologies, vehicle ownership surged as well.

Shifting roads with an economy in flux

In 1992, there were 1.8 million registered motorcycles on Vietnam’s roads (Hung, 2006). By 2003, this number had surged to more than 12 million, and in 2005 they accounted for an estimated 95% of all registered vehicles on the country’s roads (Passmore et al., 2010). Over the years, this number continued to climb – in 2010, it reached more than 31 million (Le & Blum, 2013) and in 2016 it reached more than 47 million (Vietnam National Traffic Safety Committee). Even as more cars hit the roads and public transport is becoming more common, the motorcycle remains the primary mode of transportation for most people.

Despite the emergence of public transport via bus networks in some cities, the public believes that motorcycles are the only mode of transport (Enserink, 2014). Many families own at least one two-wheeler that can take them exactly where they need to go.

This increase in motorisation has advanced people economically, though it has also been a huge health and safety hazard. It didn’t take long for road crashes to devastate Vietnam economically and personally.



Confronting road crashes – a different kind of war

In 2002, the World Health Organization (WHO) estimated that globally there were 19 road crashes per 100,000 people. In Vietnam, this figure was significantly higher at 27 per 100,000 people (WHO, 2004). By 2004, road crashes were the leading cause of fatal injury in Vietnam (Le & Blum, 2013).

Motorcyclists are particularly “vulnerable” because their safety protection is limited compared to other vehicles, such as buses, cars, and trucks. Helmets, however, are a simple intervention that provides critical protection in the event of a crash. Wearing a helmet can reduce one’s risk of death by 42% and serious injury by 69% (Liu et al., 2008).

Prior to 2007, helmet use was not universally mandated in Vietnam. Thus, many motorists did not consider it an essential safety measure, despite the fact that wearing one could mean the difference between life and death in the event of a crash. According to WHO estimates in 2004, nearly half of

all motorcyclists were not licensed and three-quarters did not comply with traffic laws (WHO, 2004). Road infrastructure was also falling behind. The government struggled to build quality roads and install safety measures at the pace that was necessary to accommodate the rapid influx in vehicles.

Despite all these risks, on average, less than one third of all motorcyclists were wearing helmets, and less than one in ten were on city roads (Hung et al., 2006).

The Asian Development Bank estimated that road crashes were costing Vietnam almost \$900 million USD each year. This was equivalent to 2.45% of its GDP, and a significant impact on the country’s young free-market economy, which was susceptible to setbacks (ADB-ASEAN Regional Road Safety Program, 2003). Vietnam was faced with a complex crisis on its roads – and one that was closely intertwined with its newfound prosperity.

AN EMERGING PUBLIC HEALTH CRISIS (1990s to 2000s)

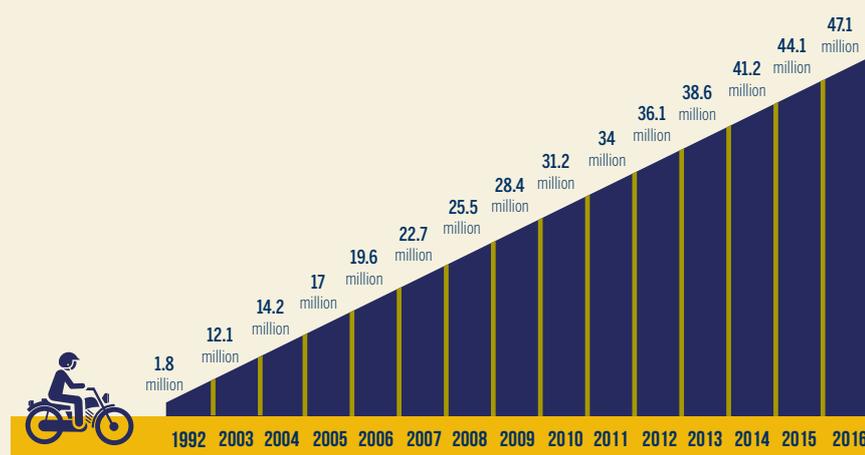
The risks that accompany economic mobility: a crippling crisis on Vietnam's roads

In the 1980s and 90s, Vietnam was recovering from the effects of a brutal war that had devastated the country. As the 20th century came to a close, the country began to experience an impressive economic boom. Businesses and families prospered, so the roads became crowded with motorised vehicles – primarily motorcycles.

This new mobility also ushered in a modern day tragedy: a sharp spike in road crash casualties. Vietnam, like many developing countries, began to face higher rates of road crash deaths with increased modernisation (Liu et al., 2008).



FIGURE 1 - INCREASING MOTORISATION



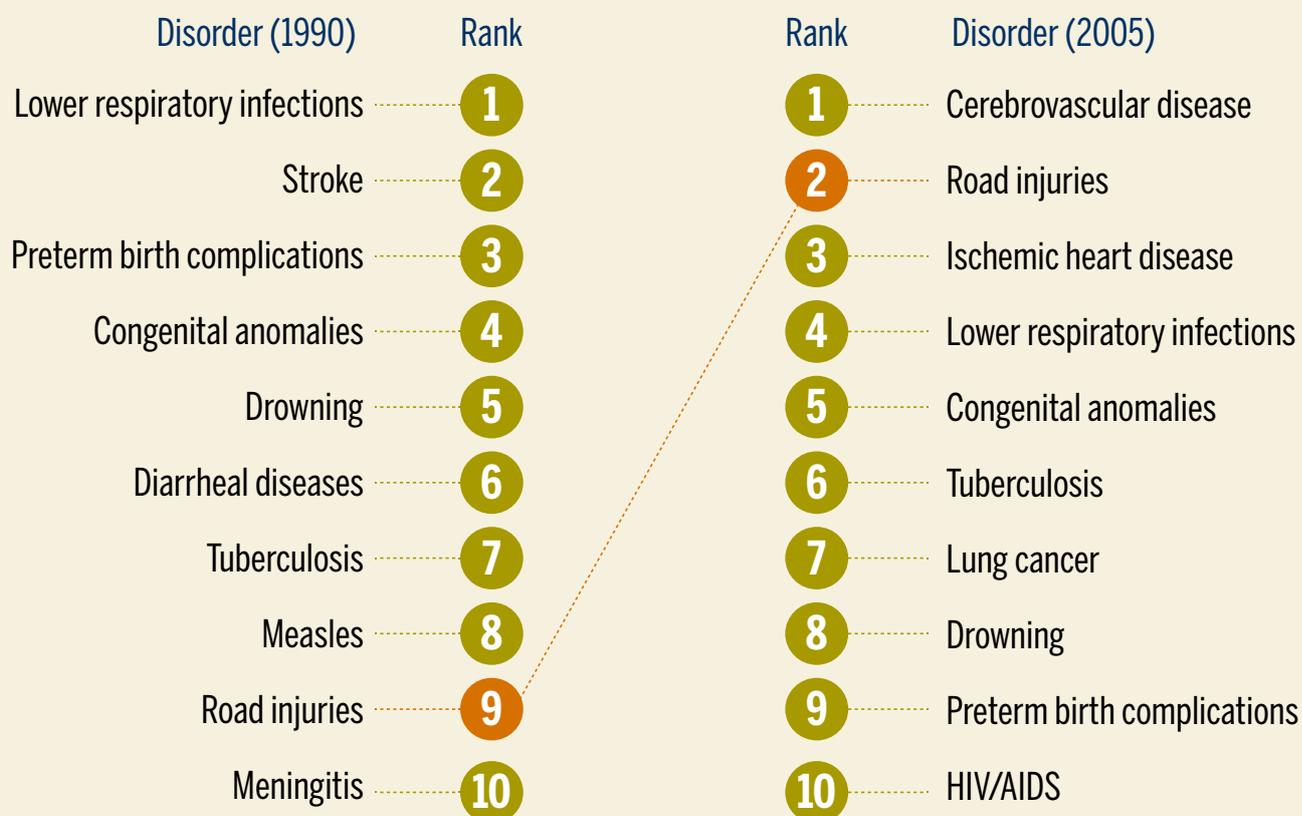
BY 2005, MOTORISED TWO- AND THREE-WHEELERS

ACCOUNTED FOR NEARLY **95%** OF ALL REGISTERED VEHICLES

VIETNAM'S RAPID MOTORISATION WAS LITTLE MORE THAN 10 YEARS IN THE MAKING, AND NUMBERS HAVE CONTINUED TO SURGE SINCE.

Source: Hung et al 2006., Vietnam National Traffic Safety Committee data

FIGURE 2 - RANKING ROAD DEATHS VS OTHER DISEASES

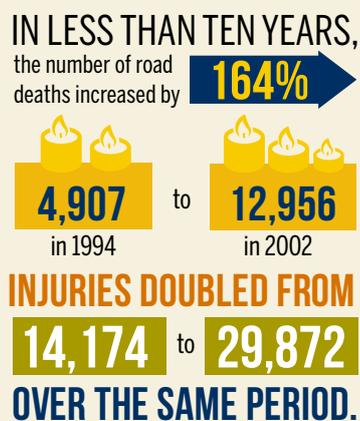


Source: Institute for Health and Metrics and Evaluation

By the late 1990s, road crash victims filled emergency wards. People nationwide felt the effects of these tragedies, whether they or loved ones were involved in incidents on the roads. Crowded hospitals made it more and more challenging to ignore the crisis that was crippling the country. These tens-of-thousands of tragic deaths and injuries threatened to undermine the country's impressive development and economic gains.

Although it is widely acknowledged that the reliability of data is problematic, the number of road crash deaths as reported by the Ministry of Health increased from 4,907 in 1994 to 12,956 in 2002 and injuries doubled from 14,174 to 29,872 over the same period (Hung et al., 2008).

FIGURE 3 - NARRATIVE ABOUT INCREASING ROAD DEATHS AND INJURIES



Source: Hung et al., 2006

The rise of road crash-related deaths and injuries had been a cause for concern worldwide for years. In 2004, the WHO and the World Bank quantified the crisis by publishing the first *World Report on Road Traffic Injury Prevention*. The report estimated that each year, 1.2 million die and as many as 50 million are injured on the world's roads (WHO, 2004). The organisations predicted that these figures would continue to surge.

Although road crash fatalities were predicted to drop by about 30% in high-income countries where the effective implementation and enforcement of road safety legislation and advances in road design, vehicle safety and emergency response have contributed to declining road deaths, in low-and middle-income countries. They were expected to continue to climb by as much as 80% - with an expected overall increase of 65% globally (WHO, 2004).

One of the key drivers of this alarming death rate in developing countries is that so many road users are highly vulnerable. The most prevalent and affordable modes of transport tend to be walking, or using a two-wheeler, such as a bicycle or motorcycle. This was particularly true in Vietnam.

The Vietnamese government recognised that action was necessary to curb the escalating deaths and injuries on its roads, so it established the National Traffic Safety Committee in 1997. The committee's mission is to improve traffic order and safety in the country.

The issue of road safety as a public health concern was also starting to come to the forefront of the national agenda, particularly in relation to broader discussions about injury prevention. In 2001, the Prime Minister established the Hanoi School of Public Health with a strong focus on injury research (The Social Science Research Council, 2010).

Shortly after its establishment, the school led Vietnam's first household survey on injuries, the Vietnam Multi-Centre Injury Survey (VMIS) in 2001, reportedly the largest study of its kind ever conducted in Asia, in collaboration with the Vietnam Public Health Research Network, the Centers for Disease Control and Prevention (CDC), UNICEF, and WHO Vietnam. The survey provided some important insights into the causes of various injuries. It was particularly important in highlighting the alarming impacts of road trauma among children. According to the findings of this early research, **4,100 children died and 290,000 children**



were injured due to road crashes every year in Vietnam.

Dr Pham V. Cuong, a researcher from the Center for Injury Policy & Prevention Research who worked on the project said, **“When the first report of VMIS was launched in Hanoi, it created a huge attention and discussion on the results. It was the first time in Vietnam we had the complete picture of injury.”**

Although the government and other stakeholders responded cautiously at first, the transparency and rigor applied to the study provided confidence, and the VMIS results have been used widely as evidence for injury prevention in Vietnam.

The VMIS found that road crashes were the second leading cause of fatalities and the third leading cause of non-fatal injuries among Vietnamese children.

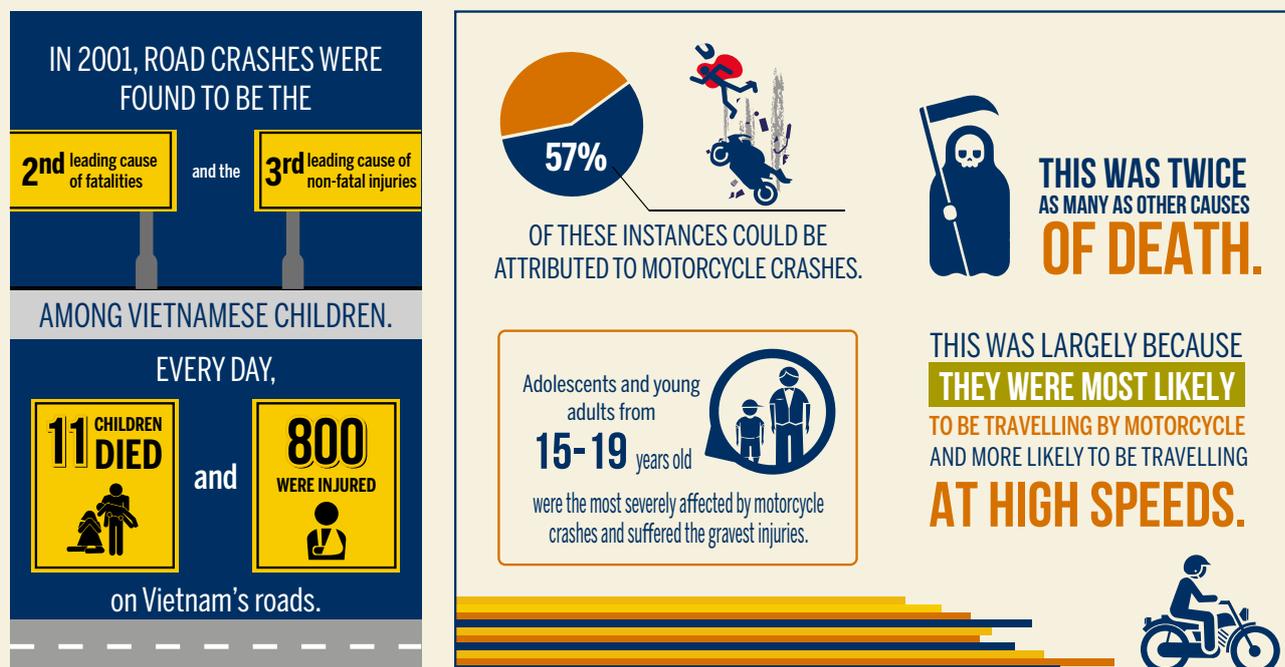
This equated to:

- 11 children dying each day
- 800 children being injured each day,
- an average of 33 per hour. (Linnan et al., 2003).

Motorcycle crashes accounted for the majority of injury cases for those aged 20 years and under (57%), and almost twice as many road crash fatalities than any other cause (Linnan et al., 2003).

Young people on the cusp of adulthood (15-19 years), were the most severely affected by road crashes involving motorcycles. They also suffered the severest injuries, predominantly due to the fact that they were more likely to be travelling by motorcycle and at a greater risk of being involved in higher-speed crashes.

FIGURE 4 - THE IMPACT ON YOUNG PEOPLE - SUMMARISING FINDINGS FROM VMIS



Source: Linnan et al., 2003

These findings could not be ignored. The VMIS project issued a report to UNICEF to ensure that the gravity of these findings, particularly the severe impacts on young people, was brought to the forefront of development discussions.

Historically, Vietnam has been considered a leader in tackling public health issues and has had highly successful child vaccination programs which have effectively reduced vaccine-preventable diseases. However, as a non-communicable health issue, injuries and deaths from road crashes have continued to climb significantly (WHO, 2007).

A key recommendation which came out of the household injury survey was to establish a national helmet law, alongside implementing road safety education in schools and improving police enforcement efforts (Linnan et al., 2003). However, challenges in implementing a universal helmet law were also raised. These included weighing the costs

associated with purchasing helmets for all children in comparison to the fact that head injury rates were not found to be significant until the age of 15, when incidences of serious head trauma dramatically increased (Linnan et al., 2003).

Globally, the situation was no better. A world report on child injury prevention, found that road crash injuries were the leading cause of death for 15-19 year olds, disproportionately affecting young people in low- and middle-income countries (Peden et al., 2008). In Asia, motorcycle crashes were the leading cause of injury and death among teenagers (Peden et al., 2008). The report, launched in Vietnam in 2008, recognised the important steps that had been taken to address child injury, particularly through the introduction of the universal helmet law. It also highlighted AIP Foundation's efforts, a nonprofit established in Vietnam in 1999 to increase child helmet use through public awareness campaigns, advocacy for law change, and *Helmets for Kids* programs.

The health and cost impacts of crashes

In addition to the strain that road crashes placed on families and the healthcare system, the societal cost effects of road crashes could also not be ignored.

In Vietnam, the cost of injury to poor households was estimated to equate the average of 11 months' total income. These incidents placed families at a significant risk of plunging further into poverty. For a poor household with a family member who sustained a road crash injury, the risk of falling below the poverty line was 21% higher than if they had not incurred such injuries (Peden et al., 2008). The loss of a parent due to road crashes would also change the course of a family's life forever. In 2001, more than 13,000 children lost a parent due to injury, with road traffic crashes being the leading cause (UNICEF & TASC, 2004).

For victims who sustained head injuries, the impacts could be catastrophic. The implications of a traumatic brain injury (TBI) stretch far beyond the high costs of medical care with ongoing psychosocial and economic impacts that the victim sometime carries forever.

Those with a TBI often cannot work in the short or the long term. The impacts are often felt by family members who may need to reduce or stop working to provide care as well.

A 2005 study explored the experiences of patients from Viet Duc Hospital in Hanoi, Vietnam's largest trauma care hospital, who had not worn helmets and sustained TBIs (Hoang et al., 2008). Only 12% of their families could afford to pay for treatment from their household savings. Others had to borrow money from relatives or sell assets to cover the costs. Direct costs of treatment for the first year post-injury ranged from \$849 USD for minor TBIs to as much as \$2,365 USD for severe ones. When compared to the average monthly income in Vietnam of only \$51.50 USD in 2004, it is easy to understand how financially devastating this could be. For those patients in the study who sustained severe TBIs, 60% could not resume work or their usual daily activities after six months and 80% needed someone to stay home to support them while they recovered from injuries.

Taking action

A 'National Policy on Accident and Injury Prevention and Control 2002-2010' was an important government step to advance national-level discussions and action plans for injury prevention measures. Discussions involved relevant ministries, including the Ministry of Transportation, and were chaired by the Ministry of Health - a milestone acknowledgement that this was a public health issue that required a multi-sectorial approach (The Social Science Research Council, 2010).

Through this process, the government committed to reducing road crash deaths from 14 to 9 per 10,000 vehicles by 2010 (Hung et al., 2006). Though this ambitious target was not ultimately achieved, it was an important indicator that road safety as a public health issue was coming to the forefront of the national dialogue in Vietnam. This was a significant first step for Vietnam to address the devastating crisis on its roads. With increasing government attention, and the support of donors and development partners, the public's awareness about the issue of road deaths and injuries was increasing. Awareness about helmet use as a key prevention strategy also began to emerge.



BOX 2:

CASE STUDY: USING DATA TO BUILD THE CASE FOR HELMET USE

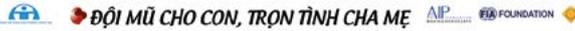
Key players in Vietnam were leading the road safety revolution well before the universal helmet law went into effect. Dr. Pham V. Cuong, a researcher from the Center for Injury Policy & Prevention Research at Hanoi University of Public Health's Department of Traffic Safety, was one of these pioneers. His work investigating road safety, law enforcement measures, and helmet use in Vietnam was instrumental in helping the public understand how to protect themselves from suffering traumatic brain injuries. Unlike many of his fellow Vietnamese, he has been wearing a helmet for 20 years – as long as he's driven a motorcycle.

“Road crashes do not happen frequently – not like how sometimes we get sick one or two times per month. In many cases, people haven't had any crashes for many years, so they're reckless and think that an accident would not happen to them,” Cuong said. “Although it rarely happens, when it does we have no chance to turn back the hands of time and fix our mistakes.”

The research Dr Cuong conducted prior to the universal helmet law sparked a dialogue at the national level about the rise of road crash deaths on Vietnam's roads. The Vietnam Multi-Center Injury Survey (VMIS), looked at the effects of injuries on public health nationwide. This was the first study of its kind in Vietnam and one of the largest conducted in Asia, and provided a strong evidence base for the development of injury prevention policies and plans in Vietnam.

Despite the broad-reaching successes of his work and the universal helmet law, Dr Cuong believes there are still



 ĐỘI MŨ CHO CON, TRỌN TÌNH CHA MẸ

many problems on the roads that need to be addressed. He cited many commonly discussed issues, such as poor quality helmets, low quality helmet standards, a lack of knowledge on how to properly wear and care for a helmet, and alarmingly low child helmet compliance. More broadly, Cuong still sees that there is a lack of public awareness of how important wearing a helmet can be. Many wear one primarily to avoid being fined, rather than to keep themselves safe.

Cuong believes that the key to tackling these pressing issues is not through legislation. To push through significant societal changes, law enforcement efforts also need to be enhanced. Dr Cuong has noticed that the traffic police see people wearing substandard helmets but rarely penalise them for doing so. He also sees drunk driving and distracted driving behaviours running rampant in Vietnam. But, he notes that such offenders experience few legal consequences, if any, despite the fact that they are putting themselves and those around them in grave danger.

Dr Cuong thinks that community awareness can play a major role in improving road safety in Vietnam. Simple behaviours – such as not texting while driving or always wearing a helmet – can send ripples throughout personal networks, and gradually change such behaviours.

WHY HELMETS MATTER



The difference a helmet makes

For motorcyclists, head injuries are the leading cause of death and disability. In low- and middle-income countries, where motorcycle use is common, experts estimate that head injuries account for as many as 88% of motorcyclist fatalities, along with causing many more serious injuries and lifelong disabilities (WHO, 2006).

In Vietnam, where motorcyclists dominate the roads, 78% of motorcyclist fatalities are due to head injuries (Ngo et al., 2012). Some, though, survive crashes and are able to receive treatment. A study conducted at a major trauma hospital in Hanoi in 2001 found that 81% of the head trauma cases it treated were motorcycle-crash related (Hung et al., 2008). International researchers have found that the severity of head injuries, indicated by the Glasgow coma scale, was significantly worse for those not wearing a helmet, compared with those who did (Ankarath et al., 2012).

With head injuries being such a prevalent cause of fatalities and injuries, helmet use is a key safety measure for protecting motorcyclists.

Wearing a quality helmet reduces the wearer's risk of death by 42% and serious injury by 69% when involved in a crash (Liu et al., 2008).

Despite the abundant evidence that helmets can prevent unnecessary head injuries and deaths in the event of a crash, in many countries there has been resistance to mandate their use. Some have debated the effectiveness of helmets in reducing motorcycle deaths given the high chance of riders sustaining other severe injuries in a crash (Abbas et al., 2012; Liu et al., 2007). A review of international research was conducted in order to combat these claims. Among many key findings, it confirmed that helmet use did not contribute to neck or spinal injuries – a common argument against helmet use (Liu et al., 2007).

BOX 3:

CASE STUDY: “HAT INSURANCE” SAVED MY LIFE

Late one evening in 2017, Mrs. Le Thi Dang Nghia was crossing an intersection on a national highway in Quang Nam Province. Suddenly, a speeding motorcycle driven by three teenagers zoomed by and crashed into her. The force of the impact threw Mrs. Nghia from her vehicle and to the ground. Her head hit the pavement and she was knocked unconscious. Her recovery took approximately three months, during which time she required painkillers to help with the lingering discomfort.

However, things could have been worse. Despite Mrs. Nghia’s care while driving, and her awareness of her surroundings, the driver of the motorcycle that crashed into her was too young to be legally driving in Vietnam. He and his two passengers were in high school – and their reckless behaviour is all too common among their peers. Studies show that road crashes are the leading cause of death for those aged 15-29 years old worldwide.

Fortunately, Mrs. Nghia was wearing a quality helmet that met safety standards. This was instrumental in her avoiding what could have been a much more severe injury – or even death. She has since recovered from the crash and returned to her daily life.

Mrs. Nghia understood the importance of helmet safety in large part because of her work with the school-based awareness and education program, *Helmets for Kids*. The program provides school children and teachers with quality helmets and road safety education through funding support from numerous private sector partners. Mrs. Nghia is the principal of Huong An Primary School, which participates in the *Helmets for Kids* program, in Quang Nam Province. The school even received an award for its impressive helmet wearing rates, in large part thanks to the dedication of Mrs. Nghia, her fellow teachers, and her students’ parents. Pre-implementation in February 2015, none of the students at the school wore helmets. By November 2016, the situation had changed dramatically with 99.5% of students wearing helmets to and from school.

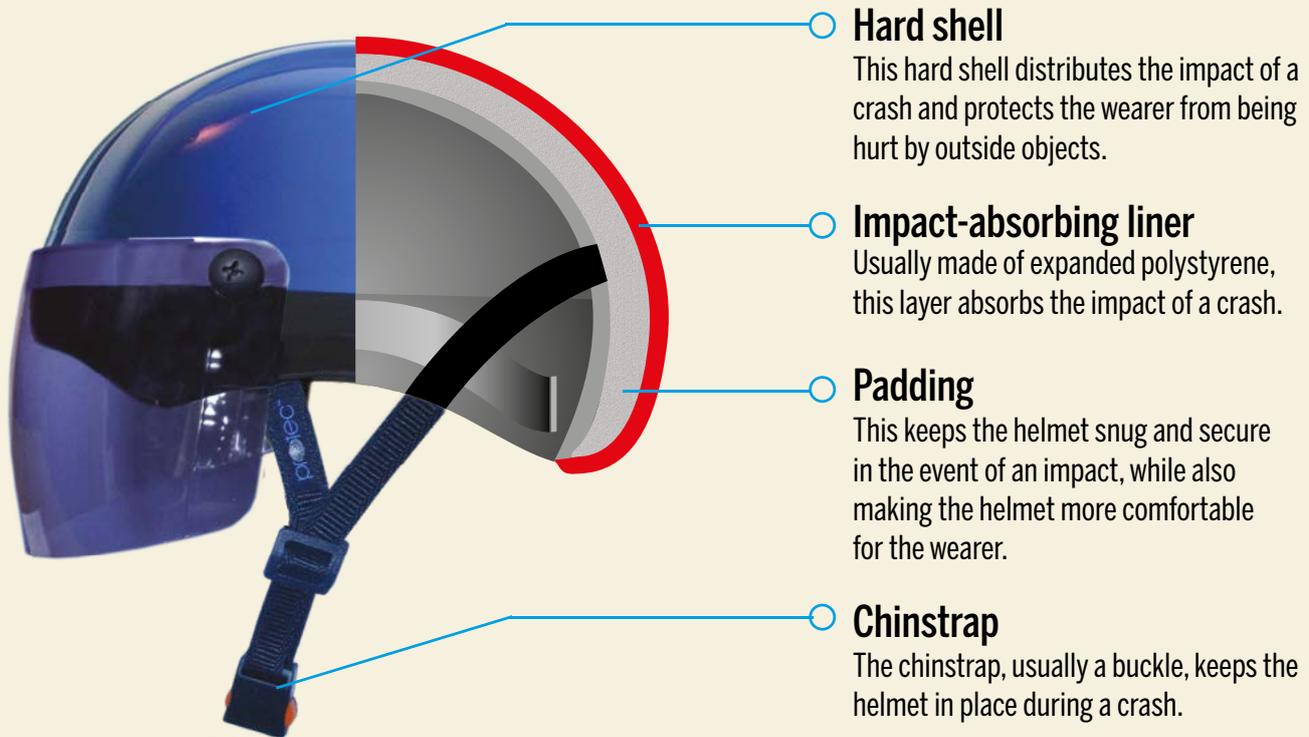


In Vietnamese, the word for helmet – “mũ bảo hiểm” – directly translates to “hat insurance.” Throughout the country, there is a strong prevalence of purchasing various forms of insurance. When Mrs. Nghia wore her helmet the night of her crash, she was purchasing a form of insurance so she could protect herself in case the worst were to happen. Her helmet, coupled with her comprehensive health insurance, were worthwhile investments in preserving her future.

After her crash, Mrs. Nghia shared her story with friends, relatives, and the parents of students at Huong An Primary School, emphasising the importance of wearing quality helmets. “My story has resonated with people who see that my experience could have been very different if I hadn’t been protected by a helmet,” she said. After hearing Mrs. Nghia speak about her experience, many people ask her about the quality of the helmet that she was wearing during the crash and wanted her to buy the same for them.

FIGURE 5 - COMPONENTS OF A QUALITY HELMET

The following are essential components of a quality tropical helmet, which help to protect motorcyclists in the event of a road crash



Source: PROTEC; WHO, 2006

While the quality of one's helmet is critical, wearing it correctly is also crucial in protecting riders from sustaining injuries. Helmets that are not properly fastened can come off during a crash. **In the event of a crash, riders who did not correctly fasten their helmets were found to be five times more likely to sustain a head injury and four times more likely to sustain a severe head injury than someone who had secured theirs correctly** (Ramli & Oxley, 2016).

Buckle up

Initially following the implementation of Vietnam's universal helmet law, though helmet use was high, many people were not aware of the importance of securely fastening their helmets' chinstraps. Awareness campaigns and even amendments to the legislation were carried out in order to address this mistake. In November 2008, police began addressing unfastened helmets via enforcement (Passmore et al., 2010). As one motorcyclist said: "I had wondered why we had to place that piece under our chin, but after watching the instruction on TV, I understood," Female, 32 years old, Danang. (Center for Women's Studies, 2011).

Establishing helmet standards

The current Vietnamese helmet standard (QCVN 2: 2008) requires a helmet to have three protective layers - a hard shell, an impact-absorbing inner layer, and a comfort liner (Hung et al., 2008). To comply with the standard, a helmet must also have a certification sticker and appropriate labelling to verify that it meets the relevant standards.

Vietnam was an early adopter of helmet standards. In 1993, it implemented a motorcycle helmet standard that was restricted to full-face helmets only. It was known as Standard TCVN 5756:1993.

In 2001, a new standard was developed specifically for the Vietnamese climate. Even though full-face helmets offer broader protection, the government decided that more would be gained by allowing and regulating helmets with partial coverage that protected the brain and were more suited for the tropical weather (Hung et al., 2008). Separate standards were also developed for adults and children.

Although manufacturers and product importers had to comply with the standards and gain certifications to demonstrate that their products met the standards, retailers were not required to do the same. This meant that non-standard helmets were readily available on the market. Helmet wearing was not universally mandated at the time, and with little awareness about the importance of helmet quality many motorcyclists wore substandard helmets.

Following the introduction of the 2007 universal helmet law, the government revised the helmet standards to combine the requirements for adult and children into one uniform regulation - (QCVN2-2008/BKHCN). All helmets sold in Vietnam for motorcycle use were required to meet the revised standards and be labelled accordingly. Helmet manufacturers strengthened their quality assurance and inspection processes, too, as they were required to undergo inspections every six months to demonstrate that their products complied with the standards (The Social Science Research Council, 2010; WHO & Hanoi School of Public Health, 2013).

According to the Directorate for Standards, Metrology, and Quality (STAMEQ) responsible for regulating helmet quality in Vietnam, as of May 2011 there were 444 helmet models from approximately 80 manufacturers that met the national standard. However, researchers who randomly selected 80 helmets that were listed as meeting STAMEQ standards found through blind-testing at helmet testing centres that less than 50% (46.3%) met the required regulations (WHO & Hanoi School of Public Health, 2013).

As the Vietnamese government continues to improve helmet quality regulations, it has committed to regularly reviewing the current standards via a "Standards Committee." This committee brings together experts from STAMEQ, the National Traffic Safety Committee (NTSC), and other relevant agencies. It also invites input from helmet manufacturers and road safety stakeholders, with a pending review underway and expected to be finalised by 2018.



BOX 4:

CASE STUDY: DEVELOPING VIETNAM'S HELMET STANDARD



Dr Terry Smith, a member of the Canadian Standards Association (CSA) as well as the American Society for Testing and Materials (ASTM) had participated in standards development within both groups when he became involved in developing Vietnam's helmet standard.

In 1997, Dr Smith and his colleague were working in Thailand collecting data for a large on-scene, in-depth motorcycle accident investigation research program in Bangkok when he first became aware of the worsening road safety crisis in Vietnam and the need to promote increased helmet use.

During his travels between Thailand and the United States, Dr Smith was waiting at the airport and reading the Washington Post when he came across an article about an American who was working in Vietnam to get as many helmets on motorcycle riders as possible. Dr Smith contacted Greig Craft and his team in Hanoi to speak to him about their work. This was the beginning of a 20-year relationship between the two. Dr Smith would go on to play a crucial role in developing a standard for

helmets that would provide adequate protection and actually be worn by the millions of Vietnamese who rode motorcycles every day.

In those early days, very few Vietnamese were willing to wear helmets when riding motorcycles – a key problem that needed to be addressed. A full-face helmet standard had been in place in Vietnam since 1993, but it was evident that simply applying the same standards without consideration for the local context had been ineffective. In order to create a truly effective standard, Dr Smith and his team needed to approach the issue with careful consideration for the unique local factors in Vietnam: the hot and humid climate, the ubiquity of motorcycles as transportation, and the economic challenges for many Vietnamese.

In 2001, Dr Smith and his team began working with the Vietnamese government to modernise the existing standard. Their research showed that due to the climate, very few motorcycle riders were willing to wear full face motorcycle helmets, calling them “rice cookers” – even willing to risk fines and their own

safety to avoid wearing them. To make the helmets more desirable to wear, Dr Smith emphasised design decisions regarding helmet weight, coverage and ventilation. Some of the most important parts of this process were determining how much coverage the helmet should provide and defining tests that would evaluate how well the helmet stayed on a rider's head during a crash.

Although the new tropical helmet design did not provide as much coverage as a full-face helmet, the difference between the devastating effect of not wearing a helmet versus wearing a lightweight and ventilated helmet was significant – literally the difference between life and death. “The objective was to save lives by getting as many helmets on as many motorcycle riders as possible, so the fact that more people are likely to wear a helmet designed for Vietnam’s conditions means that there is a greater chance at reducing the frequency and severity of head injury due to motorcycle crashes”, Dr Smith said. The priority was to develop a standard that people would use. Over time, the standard will continue to evolve as Vietnam revises and reviews helmet use and enforcement.

Although riders in Vietnam are becoming more used to wearing helmets, research has found that many helmets that are available for sale in Vietnam and being worn by motorcyclists are substandard. Dr Smith believes that both enforcement and public awareness are critical to tackling this issue. Making the public aware of the fact that a substandard helmet will provide no protection in the event of a crash may compel some riders to choose a quality helmet. Riders who choose to wear substandard helmets are susceptible to sustaining greater head injuries, and research has shown that users of novelty helmets, which do not have adequate impact absorption lining, have a significantly higher risk of death due to injury (Rice et al., 2017). In Vietnam, medical professionals often see patients with pierced skulls and lacerated eyes due to broken outer shells that do not meet quality standards.



Dr Terry Smith discussing helmet design and standards.

To increase the number of riders wearing quality standard helmets, governing bodies can approach enforcement from a number of different angles. In addition to the certification process currently in place, standards should be reinforced through more frequent quality “spot-checks” of products in the market. Heavy fines for lack of compliance with the standards should be a deterrent to producing or selling unqualified helmets. Enforcement by traffic police can also help to remove unqualified helmets from the roadway. Dr Smith notes that an approach used in the Philippines was to have every rider report to the local police station with his or her helmet where qualified officers inspected helmets and provided a sticker which confirmed if they were assessed as compliant with the standard. After a grace period, any rider wearing a helmet without a sticker to confirm that it had been inspected was fined.

After working with the Vietnamese government to develop a quality helmet standard and seeing the results over the last ten years, Dr Smith has certainly played a key role in helping save lives on the road each day. “I have always felt and continue to believe that the best helmet out there is the one that gets worn every day”, he said. Thanks to Dr Smith’s work, the helmet standard is a solid framework that can be strengthened and supported as riders begin to emphasise not just wearing helmets, but quality helmets as well.

ADVOCATING FOR CHANGE



Research has shown that in order for helmet wearing to thrive in countries, governments must commit to enforcing legislation. Importantly, in countries where helmet laws have been effectively implemented and have led to an increase in helmet use, road crash injury and death rates have reduced (Abbas et al., 2012; Liu et al., 2007).

Prior to 2007 in Vietnam, although there were a number of attempts to mandate helmet use on certain roads, none of these regulations were universal. Nationwide helmet wearing rates

remained low, as citizens had no legal incentive to wear one. (Hung et al., 2006). In countries where helmet use is not required by law, helmet usage is typically less than 10% (WHO, 2004).

Without a consistent law that applied to everyone travelling on every road, it seemed to people that helmet use was not an essential safety measure for every journey. In Vietnam, the majority of the public did not adopt helmet use as a daily habit. Many did not comply with the laws on select roads and road crash deaths continued to increase.

The early years of Vietnam's helmet regulations

Vietnam's first helmet wearing law was introduced in 1995, though there were no means to penalise motorcyclists for non-compliance. This early legislation was barely effective. The country's helmet quality standard, which was adopted in 1993, was also incompatible with the tropical climate. Many dubbed these full-faced helmets "rice cookers" and there were few outlets to purchase them. With no enforcement or public awareness about the risks associated with not wearing a helmet, there was little demand and virtually no supply.

Following the government's establishment of the National Traffic Safety Committee (NTSC) in 1997, progress began to be made toward implementing meaningful policy changes to address the escalating road safety crisis. Meanwhile, road safety stakeholders, including international agencies and nonprofits, were pushing forward efforts to promote the benefits of helmet wearing and raise the profile of the issue among the global community.

BOX 5:

INTRODUCING THE NATIONAL TRAFFIC SAFETY COMMITTEE

Since its inception in 1997, the National Traffic Safety Committee (NTSC) has led the government's road safety efforts. Though the Vietnamese government has other agencies dedicated to transport, the NTSC brings together departments with diverse backgrounds to enact meaningful changes. It was originally comprised of representatives from 15 different ministries, in disciplines ranging from law enforcement to healthcare. It still maintains this diverse roster of members.

Vietnam's Deputy Prime Minister chairs the NTSC. It extends its reach into communities nationwide through local offices in each of the country's 63 provinces. The committee is also dedicated to engaging with international multilaterals and non-governmental partners, including private companies and nonprofits. Together, these stakeholders have been able to usher in positive changes – ranging from school-based activities to the universal helmet law – that make Vietnam's roads safe for all.

In 2000, U.S. President Bill Clinton made a historic visit to Vietnam as the first U.S. president to do so since the end of the war. During his visit, he helped launch AIP Foundation's *Helmets for Kids* program. AIP Foundation had begun work in the country one year prior with the mission to promote and educate school children about helmet use.

As local stakeholders shone the international spotlight on the road safety crisis in Vietnam, the government was encouraged to take further action to boost helmet wearing rates and save lives. This spurred a series of amendments to helmet laws from 2000 to 2005. Although these actions signified positive shifts, the legislative changes did little to influence the helmet wearing habits of the population.

The initial changes in 2000 only required helmet wearing on specific highways that led to Hanoi, Haiphong, Danang, and Ho Chi Minh City. But, without enforcement there was little impact.

In 2001, a regulation was passed broadening the requirement for helmet use to "regulated roads," which was then later expanded to include "highways." That same year, fines were introduced for non-compliance. They ranged from 10,000 VND to 20,000 VND, which was equivalent to \$0.56 USD to \$1.12 USD. But, these were insufficient

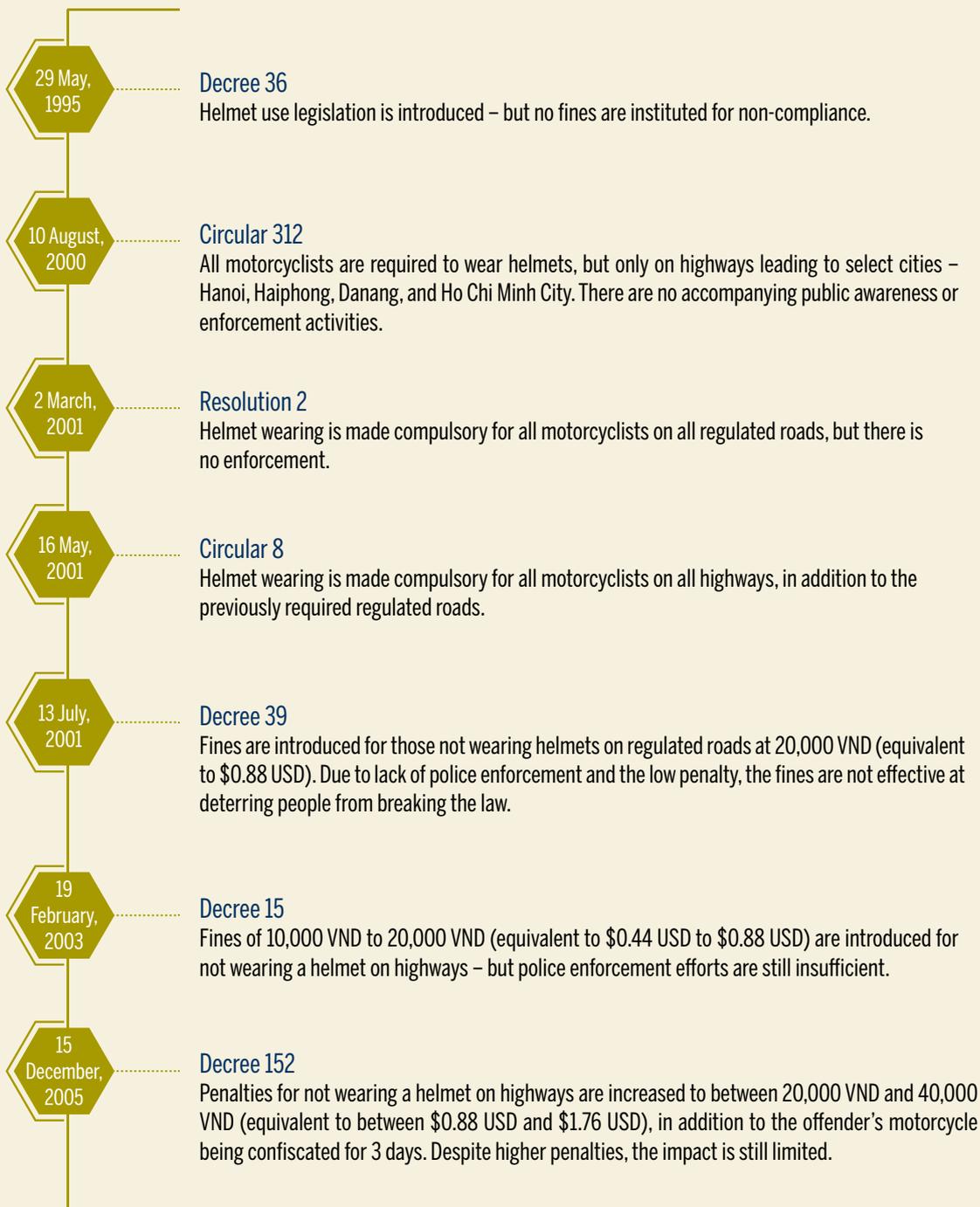
in deterring people from breaching the law and police enforcement was not prioritised. In 2003 and 2005, the government introduced further, incremental changes. Without a nationwide strategy to boost awareness, coupled with insufficient funding and police force to support a national enforcement campaign, these efforts were largely ineffective.



FIGURE 6 – HELMET LAW AMENDMENTS TIMELINE 1995-2005 (PRE-UNIVERSAL HELMET LAW)

Pre-2007 Helmet Laws in Vietnam

The Vietnamese government began to mandate helmet use more than a decade before the 2007 universal helmet law went into effect. Despite these continual efforts, inconsistent police enforcement and low penalties prevented the legislation from effectively motivating the public to adopt helmet-wearing habits.



BOX 6:

HELMET RENTING

For many years, helmet wearing was only mandatory and enforced on specific roads. Rather than encouraging people to consistently wear helmets, motorcyclists simply viewed the requirements as an inconvenience and some orchestrated entrepreneurial activities to help people avoid the fines. On certain streets, motorcyclists could rent a helmet at the start of a “helmet zone” and then return it at the end.

One bridge in Ho Chi Minh City was deemed a helmet use road under the legislation at the time, but helmet use was not required on the roads surrounding it. Motorcyclists could simply rent a helmet at the start of the bridge and return it at the end.



Laying the foundations for change



Although weak legislation and enforcement was a key cause of low helmet use, there were a number of other factors at play that could not be ignored.

One such factor was the lack of affordable, quality helmets available in the country. The government found it difficult to mandate that motorcyclists wear helmets when there was a limited supply in the country. The costs of purchasing a helmet that complied with the helmet standards adopted in 1993 were too expensive for most

people. This “rice cooker” helmet design was also not well suited to the hot, humid climate.

AIP Foundation, who had been working with public- and private-sector partners to provide helmets and educational activities to school children, was well aware of this issue. The organisation had been unable to find affordable helmet options in Vietnam that provided adequate protection. The cost of importing helmets was also steep.

So, AIP Foundation took action and engineered a solution. It sourced international technical expertise and funding support in order to develop the world’s first “tropical” motorcycle helmet using low-cost, lightweight materials. In 2001, international specialists supported the Vietnamese government in developing a specific helmet standard suited to Vietnam’s tropical climate. By 2002, Protec, a helmet factory in Hanoi, had commenced operations in order to supply quality, climate-appropriate helmets to the market.

Around the same time, the National Traffic Safety Committee (NTSC) appointed a new Chief Secretariat who strongly believed in the need to prioritise helmet use in order to address the road crash epidemic.

BOX 7:

CASE STUDY: A PERSONAL MISSION TO TACKLE VIETNAM'S ROAD SAFETY CRISIS



Greig Craft, originally from the United States, moved to Vietnam in 1989. In his first decade of living in the country, he witnessed a time of enormous economic growth and modernisation in the country. With these societal shifts also came an increase in motorisation on Vietnam's roads – motorcycles were replacing bicycles and pushcarts. Craft also watched the road crash casualty toll quickly climb.

“Witnessing tragic and preventable road deaths became a reality of the daily commute- and it affected everyone,” Craft said. When a colleague of his lost an uncle in a road crash and then another relative on their way to the funeral, Craft knew that something needed to be done. He had been working in business, but turned his attention to helping prevent needless deaths and injuries on Vietnam's roads.

Craft admits that the universal helmet law seemed far-fetched initially. At the time, very few people wore helmets and there was little awareness of their importance. There was also inadequate supply available on the market. Full-faced helmets, which many nicknamed “rice cookers,” were not comfortable in the hot, humid climate. As relations between Vietnam and the United States began to normalise, this opened the door to engaging international private-sector donors to collaborate and address this issue.

In 1999, Craft founded AIP Foundation – a nonprofit organisation dedicated to pioneering road safety efforts in Vietnam. The organisation connects with global advocates in business, international development, and public health to implement life-saving initiatives. It began its signature program, *Helmets for Kids*, in 2000. The school-based program works with local government agencies to provide helmets and road safety education to students throughout Vietnam. Early supporters of AIP Foundation included Atlantic Philanthropies, AIG, BP, and Johnson & Johnson. In the years since, the nonprofit has expanded its work to other road safety issue areas such as pedestrian safety, speeding, driving skills, safe school zones, and industrial worker education.



In 2001, Craft established Protec, a social enterprise helmet factory in Hanoi that produces quality, climate-appropriate helmets. Protec employs 200 people, including 130 factory workers, 30% of who have physical disabilities. In 2009, Protec received commendation from U.S. Secretary of State Hillary Clinton with the Secretary of State’s Award for Corporate Excellence. Both AIP Foundation and Protec have since expanded their work beyond Vietnam. Today, AIP Foundation has programs in Thailand, Cambodia, China, and Myanmar.



Twelve years after establishing AIP Foundation, Craft was awarded Vietnam’s Friendship Medal - the highest civilian honor given to foreigners by the country’s President. The award recognised his contributions to improving road safety through establishing AIP Foundation and Protec, his contributions to the universal helmet decree, and his work engaging international expertise and coordinating with the government to develop helmet standards that were appropriate for Vietnam conditions. Transport Minister Ho Nghia Dung thanked Craft for his “outstanding contributions to road safety initiatives in Vietnam,” noting, “Your innovations in the development and design of a tropical motorcycle helmet have already saved many lives.”

BOX 8:

CASE STUDY: A CHAMPION FOR CHANGE AT THE HELM OF THE NTSC

Bui Huynh Long was the first Chief Secretariat of National Traffic Safety Committee (NTSC) and dedicated himself to promoting road safety during his 10 years at the helm. Long was one of the key architects of the universal helmet law. He held the conviction that increasing helmet use would have an instrumental impact on reducing road crash fatalities.

Long was eager to collaborate with diverse stakeholders to achieve these feats. During his time at the NTSC, he built close relationships with non-governmental organisations including AIP Foundation and collaborated with other agencies, such as the Ministry of Education and Training, to develop road safety interventions.

His cooperative approach paid hefty dividends. A large body of local and international partners came to the table to brainstorm, strategise, and partner in



making the ambitious universal helmet law a reality in 2007. The efforts Long led were even recognised on the international stage at the First Global Ministerial Conference on Road Safety in Moscow in 2009.

In 2004, the collaboration between the NTSC, other government departments, and road safety stakeholders also expanded into other fields. Recognising that increasing helmet use was not going to be just about implementing laws, the Ministry of Education and Training had the country's first road safety educational curriculum piloted in select primary schools. This laid the foundation for Vietnam's children to receive life-saving road safety knowledge. The curriculum was initially developed and supported by AIP Foundation and since then has been further revised and improved upon by the Ministry of Education and Training.

With an increasing number of private sector companies playing a role in boosting Vietnam's economy, a new opportunity emerged to promote helmet use and safe driving practices among people in their workplaces. BP was one of the first to implement a helmet wearing policy for its employees, setting a strong example for other employers to follow. International momentum was also building. The first

World Report on Road Traffic Injury Prevention was published in the same year that the United Nations implemented its resolution on Improving Global Road Safety. Lack of helmet use was identified as a key global road safety issue that needed to be urgently addressed, particularly in low- and middle-income countries where motorcycles were most prevalent (WHO, 2004).

Against the background of this global momentum, Vietnam's dynamic approach to tackling road safety attracted direct investment in the country from the FIA Foundation, World Bank's Global Road Safety Facility and Bloomberg Philanthropies. These contributions enabled new helmet-focused programs to be implemented in collaboration with the NTSC and other government partners. AIP Foundation, the Global Road Safety Partnership, Hanoi School of Public Health, and the World Health Organization were actively advocating or providing technical assistance for improved helmet legislation aimed at boosting Vietnam's helmet wearing rates.

A need for change

In 2005, despite the progress being made just 10 years after the introduction of Vietnam’s first helmet laws, it was clear that there was a need for more drastic changes. One study found impressive advancements in increasing the availability of suitable helmets at affordable prices. Based on road-side surveys conducted in Hai Duong Province (late 2005 to early 2006), almost 95% of riders surveyed said they owned helmets. But, only 23% were wearing one when they were approached for an interview (Hung et al., 2008). This highlighted a key dilemma – helmet use didn’t always correlate with helmet ownership.

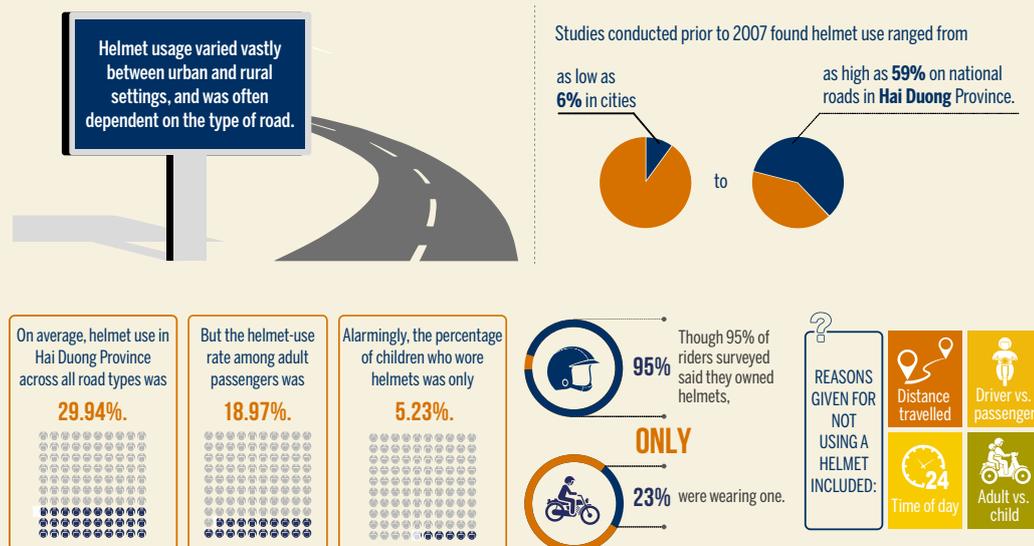
The fact that the law only applied on certain roads sent the wrong message to the public. It also created confusion among motorcyclists about where they were and were not required to wear a helmet. Predominantly, helmet wearing was required on inter-provincial and national roads. In urban areas, helmet wearing was only encouraged and gentle reminders were the extent of enforcement efforts (Le & Blum, 2013).

Helmet usage was hugely variable between urban and rural settings, and was ultimately dependent on the type of road. Helmet observation studies undertaken prior to

the 2007 universal helmet law found helmet use among both drivers and passengers ranged from as low as **6%** in cities to as high as **59%** on national roads in Hai Duong Province (AIP Foundation & Vietnam National Economics University, 2007; Hung et al., 2006). Across all road types, average helmet use in Hai Duong Province was **29.94%**, but adult passenger helmet use rates were much lower at **18.97%** and among children, there was a **disturbingly low rate of 5.23%** (Hung et al., 2006).

Other factors affecting helmet use included the distance people were travelling, the time of day, and whether they were a driver or passenger (AIP Foundation & Vietnam National Economics University, 2007; Le & Blum, 2013). However, there was evidence that when helmet use was mandated and enforced, usage significantly shifted, almost doubled – hitting an average of 85% – in areas where there was police enforcement (AIP Foundation & Vietnam National Economics University, 2007). These findings were important in building the case for a policy change (Hung et al., 2006). The data clearly showed that in order to save lives on Vietnam’s roads, a robust change in laws was imperative.

FIGURE 7 - VARIABILITY IN HELMET USE



Source: AIP Foundation & Vietnam National Economics University, 2007; Hung, 2006

BOX 9:

CASE STUDY: HELMETS FOR KIDS - WORKING BEYOND THE LEGISLATION

Diverse players came together to champion helmet wearing efforts in Vietnam years before the universal helmet law was instituted. Private sector stakeholders, ranging from multinational companies to global philanthropies, played integral roles in these early efforts and are still spearheading initiatives today.

Instituting employee safety policies was one early action that rippled throughout society. BP Vietnam led these efforts by implementing and enforcing an employee helmet policy preceding the universal helmet law. The UPS Foundation, has also promoted expansive employee engagement in road safety efforts. The Foundation has also supported community-based helmet campaigns to save lives on Vietnam's roads.

In 2000, the Vietnam-based road safety nonprofit, AIP Foundation, launched its *Helmets for Kids* program. This school-based initiative provides primary school students with donated helmets, complemented by road safety education and awareness activities. U.S. President Bill Clinton joined the nonprofit during his official state visit to Vietnam in 2000 to kick-off the first *Helmets for Kids* initiative. Nearly two decades later and with the support of more than 70 corporate partners, AIP Foundation has distributed hundreds of thousands of helmets through the program in Vietnam and expanded this model to schools in Cambodia and Thailand.

AIP Foundation works closely with government stakeholders to identify at-risk schools in provinces throughout the country. Before launching the initiative, the nonprofit conducts observational assessments at select schools to identify the pre-implementation helmet wearing rates.

Following the kick-off ceremony, schools implement an educational curriculum and teachers teach students critical road safety lessons. Corporate partners often send employees to schools to volunteer throughout the program's implementation. In order to evaluate the effectiveness of the initiative, AIP Foundation conducts rigorous helmet observations, focus groups, and knowledge surveys. The post-implementation helmet wearing rates are a key indicator of a program's successes.



The UPS Foundation President Eduardo Martinez with actress Michelle Yeoh and AIP Foundation CEO.



U.S. President Bill Clinton launches the *Helmets for Kids* program in Ho Chi Minh City.



Danish Ambassador Peter Lysholt Hansen in Hanoi.

In 2009, the nonprofit received the Prince Michael of Kent International Road Safety Award for its comprehensive work with *Helmets for Kids*.

In 2015, at the occasion of the 20th anniversary of diplomatic relations between the United States and Vietnam, the U.S. Department of State launched a public-private partnership with AIP Foundation to raise funds from U.S. and Vietnamese corporations for *Helmets for Kids*.

The program provided educational activities and helmets to children from at-risk schools across the country. This partnership was a unique platform combining expertise from the U.S. and Vietnamese governments, the nonprofit- and business sectors to address a mutual public health concern. It garnered support from multinational corporations such as AIG.



HRH Prince Michael of Kent at a *Helmets for Kids* event in Hanoi.



Pete Peterson (far right), the first U.S. Ambassador to Vietnam after the war.

In 1999, U.S. Ambassador Pete Peterson was a key supporter of child safety in Vietnam, and especially AIP Foundation's early activities and interventions for child helmet wearing. He has been credited by Greig Craft for helping to secure the funding for the Protec Factory established by AIP Foundation in 2000.

U.S. Ambassador Ted Osius (2014-2017) has been an equally passionate champion of helmets for children during his tenure, tirelessly donating substantial time and energy to the program, attending numerous *Helmets for Kids* ceremonies and serving as a tireless supporter and promoter of helmet wearing. He facilitated the milestone public-private initiative between AIP Foundation and the U.S. State Department in 2015.



U.S. Ambassador Ted Osius with AIP Foundation President.

A TURNING POINT (2005-2007)

Despite the Vietnamese government's 10-year commitment to implementing incremental law changes, helmet use remained inconsistent and road deaths continued to escalate nationwide. As motorcycles dominated the roads, head injuries were the top cause of road crash deaths and injuries (Ngo et al., 2012). Concerned stakeholders at all levels recognised that increased action was necessary to curb the growing crisis. So, local and international players joined forces in a collaborative effort to address the issue.

In 2005, AIP Foundation approached world-renowned advertising agency, Ogilvy & Mather, to develop a public awareness campaign aimed at increasing helmet use nationwide. This campaign took a risky approach by doing more than repeat the importance of helmets. Rather, it was going to challenge the excuses people gave for not wearing one.

Market research was conducted and found that in Vietnam, people gave countless reasons for not using a helmet. They would say things like:

- "It ruins my hair"
- "Wearing a helmet is so uncomfortable and hot"
- "You look stupid wearing a helmet when no one else is"
- "A crash won't happen to me"
- "I drive very slowly in the city so it's not necessary"
- "I can't hear when I'm wearing a helmet, it's like wearing a rice-cooker on your head"

The campaign was slated to push the boundaries in Vietnam's historically conservative culture and would have a broad reach. However, producing such a hard-hitting campaign like this required significant investment and support from the Vietnamese government in order to ensure that it could be disseminated nationwide.



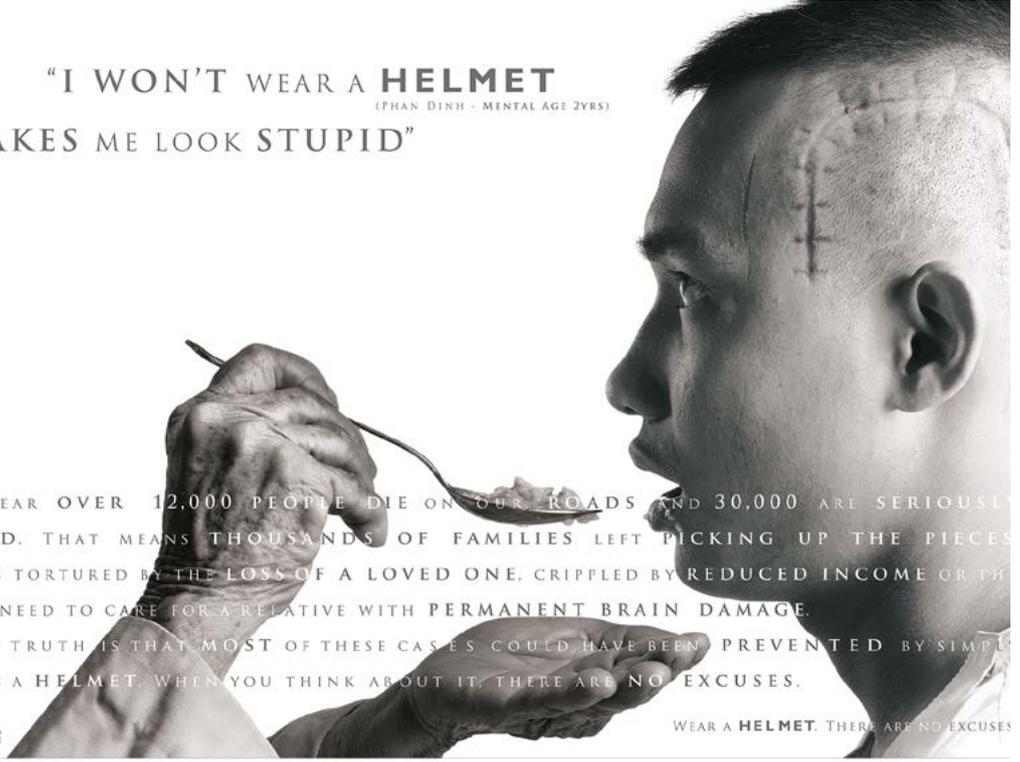


“I WON’T WEAR A **HELMET**
(PHAN DINH - MENTAL AGE 2YRS)
IT MAKES ME LOOK STUPID”

EVERY YEAR OVER 12,000 PEOPLE DIE ON OUR ROADS AND 30,000 ARE SERIOUSLY INJURED. THAT MEANS THOUSANDS OF FAMILIES LEFT PICKING UP THE PIECES. FAMILIES TORTURED BY THE LOSS OF A LOVED ONE, CRIPPLED BY REDUCED INCOME OR THE SUDDEN NEED TO CARE FOR A RELATIVE WITH PERMANENT BRAIN DAMAGE. THE SAD TRUTH IS THAT MOST OF THESE CASES COULD HAVE BEEN PREVENTED BY SIMPLY WEARING A HELMET. WHEN YOU THINK ABOUT IT, THERE ARE NO EXCUSES.



WEAR A **HELMET**. THERE ARE NO EXCUSES

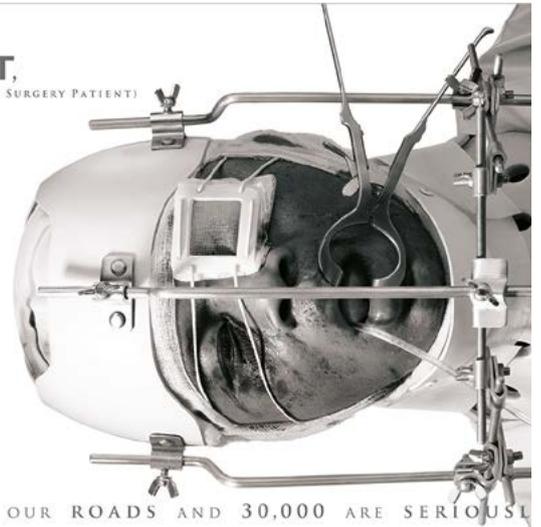


“I NEVER WEAR A **HELMET**,
(NGUYEN LAN - CRANIAL SURGERY PATIENT)
THEY DON'T LOOK COOL”

EVERY YEAR OVER 12,000 PEOPLE DIE ON OUR ROADS AND 30,000 ARE SERIOUSLY INJURED. THAT MEANS THOUSANDS OF FAMILIES LEFT PICKING UP THE PIECES. FAMILIES TORTURED BY THE LOSS OF A LOVED ONE, CRIPPLED BY REDUCED INCOME OR THE SUDDEN NEED TO CARE FOR A RELATIVE WITH PERMANENT BRAIN DAMAGE. THE SAD TRUTH IS THAT MOST OF THESE CASES COULD HAVE BEEN PREVENTED BY SIMPLY WEARING A HELMET. WHEN YOU THINK ABOUT IT, THERE ARE NO EXCUSES.



WEAR A **HELMET**. THERE ARE NO EXCUSES



Establishing an international coalition

Klaus Rohland, the then head of the World Bank in Vietnam, also recognised the need for such action. The economic impacts of road trauma had been calculated in 2003 and it was found that such incidences were hitting the emerging economy hard.

Road crashes were costing the country close to \$900 million USD annually in property damage, administrative costs, lost output, and medical and human costs, while **also undermining GDP growth by an estimated 2.45%** (ADB-ASEAN Regional Road Safety Program, 2003; The Social Science Research Council, 2010). Vietnam's rapid economic development was under siege.

After being approached by AIP Foundation with the concept of this hard-hitting campaign, the World Bank hosted a kick-off meeting that brought together private corporations, nonprofits, multilateral agencies, philanthropies, and government partners. Together, they formed the Vietnam Helmet Wearing Coalition (VHWC). The group, led by AIP Foundation, aimed to provide both the funding and in-kind support necessary to enable the campaign to come to fruition.

This collaboration enabled a three-phase public awareness campaign that commenced in March 2007 prior to the passage of the universal helmet law, and continued until December 2008. In total, the coalition contributed \$1,138,683 USD during this period, as well as extensive in-kind support. The VHWC continued to support campaigns beyond this with a focus on child helmet use, which ran from February 2009 to March 2010.



Not only was this investment essential for mobilising the campaigns – which were heralded with providing the push needed to bring the issue of non-helmet use to the forefront of public discourse – but the VHWC also lent their voices to advocacy efforts for the 2007 law change. Their dedication and determination elevated the profile of the issue and demonstrated to the government that there were supporters around the country and the world who were ready and willing to reverse this public health crisis.

Planning for action

Other activities that would be pivotal in getting the gears in motion for a universal helmet law were also underway. In 2006, the Vietnam National Economics University undertook research into the status of helmet use in Vietnam in four cities across the country through helmet observations and surveys with more than 1000 motorcyclists (Nguyen, 2009). This provided valuable insights into the helmet wearing knowledge, attitudes and practices of motorcyclists. The results were shared with national stakeholders at a “helmet action plan” workshop in December 2006, and provided a baseline ahead of the already slated “*Wear a helmet. There are no excuses*” campaign. One such finding was that helmet use was influenced by a variety of factors, including time of day, distance traveled, and perceived enforcement levels between different cities and provinces (Nguyen, 2009). This research provided the robust evidence needed

to inform the recommendations presented during the National Helmet Action Plan Workshop organised with the NTSC. This included the need for helmet regulations to be expanded, as well as reinforced by police enforcement and public awareness activities, to cities where helmet use was much lower (AIP Foundation & Vietnam National Economics University, 2007). The Global Road Safety Partnership (GRSP), the French Red Cross, and AIP Foundation collaborated to facilitate the workshop, which brought together 75 participants from government ministries, nonprofits, and the private sector, including representatives from 10 provincial traffic safety departments. This cross-sector involvement set in motion plans for the universal helmet law and laid a blueprint for a feasible nationwide plan. Importantly, it highlighted the strong commitment and ultimately the buy-in of the new director of the NTSC to instituting universal helmet use nationwide.

No excuses

By April 2007, AIP Foundation's the "Wear a helmet. There are no excuses" campaign was in full distribution. The campaign seized the public's attention at a critical time. Its approach was highly unique, particularly in the Vietnamese context, where past campaigns had been limited to government-run, propaganda-style messaging.

The campaign had two key objectives. The first was to challenge the attitudes and helmet-wearing habits of the population. Research conducted prior to the campaign found that the primary motivator for people to wear a helmet was to avoid a fine, which at the time was limited to major roads and highways. **Nearly two-thirds - or 64% - of those surveyed said they never wore a helmet in cities** (AIP Foundation & Vietnam National Economics University, 2007).

So, the campaign aimed to overturn these motivations by challenging the population to reconsider their views through powerful, educational messages. However, this was a lofty goal. Only 5% of people surveyed said their helmet wearing habits had been influenced by previous awareness campaigns (AIP Foundation & Vietnam National Economics University, 2007).

The second objective was to generate a public dialogue, which fit into VHWC's broader aim to advocate for legislative changes. The stakeholders intended that this open discourse would pave the way for the government to develop and enforce a helmet law for all roads and road users that could ultimately reduce head-related injuries and deaths.

"A life saved is an additional soul to serve the country. A life injured and/or lost is an avoidable mourning for the nation. Imagine if this campaign can save even 10% of these 30,000 annual traffic casualties. It will be a noble feat for the nation to celebrate" - said Omkar Shrestha, Deputy Country Director of the Asian Development Bank in Vietnam, a member of the VHWC.

Visually, the campaign was designed to shock the public. It overlaid the plethora of excuses that people gave for not wearing a helmet with graphic, black and white images of the real-life consequences of road crashes. This emphasised the health impacts and post-crash care needed by victims of traumatic brain injuries.

With the multi-sector support of the VHWC and the Vietnamese government, AIP Foundation implemented the campaign nationwide and across diverse mediums. In addition to traditional television and print ads, the campaign messages were displayed on billboards and buses, in shopping malls and supermarkets, and were even promoted by celebrities at free public concerts. These public spaces were usually heavily regulated by the government - the "Wear a helmet. There are no excuses" bus ads were the first ones to ever be displayed in Vietnam.

With the government's support, the messages were disseminated across all 63 provinces. The campaign leveraged buy-in from local Traffic Safety Committees and the state-owned VTV network, which helped it to reach well beyond the scope of its original budget.



The "Wear a helmet. There are no excuses" campaign signalled a turning point on many fronts. Not only did it grab the public's attention and disrupt apathetic views toward helmet use, but the NTSC credits it as being hugely influential in the enactment of the universal helmet law. The Prime Minister was impressed by the campaign's concept and the National Helmet Action Plan. Originally planned for 2008, the implementation of the nationwide, universal helmet law was accelerated to December 2007.

On 29 June, 2007, Vietnam's Prime Minister announced Resolution 32. As of 15 September, 2007, motorcycle helmet use would be mandatory for all government workers, and on 15 December, 2007, it would be required for all riders on every road.

VIETNAM'S HELMET STORY: MILESTONES THROUGH THE YEARS

1997



The Vietnamese government establishes the National Traffic Safety Committee (NTSC).

1999



AIP Foundation, the first international NGO exclusively dedicated to improving road safety in Vietnam, is established with the support of private and public sector partners.

2000



During his official state visit to Vietnam, U.S. President Bill Clinton launches AIP Foundation's signature program, *Helmets for Kids*.

2001



The Vietnamese Government establishes the Hanoi School of Public Health with a focus on injury research.



Vietnam adopts specific child and adult helmet standards suited to the tropical climate and new laws requiring helmet use on certain roads, with minimal fines and enforcement.

2002



The social enterprise Protec helmet factory commences operations.



Mr. Bui Huynh Long, an avid supporter of improving helmet legislation, is appointed first chief secretariat of the NTSC.



A National Policy on Accident and Injury Prevention and Control is implemented.

2003



The Vietnamese government sets up helmet quality test centres in Danang, Hanoi, and Ho Chi Minh City.



AIP Foundation publishes Open Letters about the lack of helmet use in Vietnam generating local and international media attention.

2004



BP becomes one of the first companies in Vietnam to establish and strictly enforce a helmet wearing policy for its employees.

2006



The Vietnam Helmet Wearing Coalition (VHWC), convenes for the first time, led by AIP Foundation, with the mission of promoting the issue of non-helmet use to the forefront of public discourse.



The Vietnam National Economics University completes a baseline study which reveals helmet use rates of as low as 6% in cities and 29% on national highways.



GRSP, WHO, AIP Foundation, and the NTSC collaborate to bring together Vietnamese government stakeholders to conduct a national workshop on helmet wearing.

2007



"*Wear a helmet. There are no excuses.*" is launched in April 2007. Initiated by AIP Foundation and made possible with nearly \$1.2 million USD and in kind support provided by the VHWC, the campaign is considered pivotal in influencing the passage of the universal helmet law.



AIP Foundation supports campaign efforts with press conferences, open letters, concerts, and celebrity appearances focused on generating national dialogue about helmet use.



On 15 December, the universal helmet law goes into effect nationwide. Helmet use increases significantly overnight.

2008



Strong enforcement coupled with nationwide awareness activities results in helmet use increasing to more than 90% across four major cities, but child helmet use lags.



The VHWC launches a child helmet campaign and advocacy efforts to address low child helmet use, due to a legislative loophole.



FIA Foundation brings Michelle Yeoh, UN Global Road Safety Ambassador and world-renowned actress to Vietnam to advocate for child helmet use. At the UN General Assembly in NYC she meets with UN Secretary-General Ban Ki-moon to garner support for a child helmet law in the country.



Archbishop Desmond Tutu writes a letter to Vietnam's Prime Minister in support of instituting a child helmet law.

2009



Research reveals that since the 2007 universal helmet law, road crash fatalities dropped by 12% and injuries decreased by 24%.



The WHO together with Vietnamese Government hosts an expert consultation to disprove the myth that helmets are harmful for children.



AIP Foundation, with support from FIA Foundation and the World Bank Global Road Safety Facility, establishes the Global Helmet Vaccine Initiative to “put a helmet on every head in the Decade of Action for Road Safety.”

2010



To address a legislative loophole, a new law stipulates that drivers will be fined when carrying an un-helmeted child.



The Bloomberg Initiative for Global Road Safety launches a project to promote quality helmet standards.

2011



AIP Foundation conducts a comprehensive analysis for the government to determine the roles and responsibilities of stakeholders working on child helmet use.



Vietnam launches the UN Decade of Action for Road Safety.

2012



The “*Children also need a helmet*” national public awareness campaign is launched by AIP Foundation with support from Atlantic Philanthropies, international partners, and Vietnamese government. The campaign focuses efforts on three cities: Hanoi, Danang, and Ho Chi Minh City.

2013



With support from GRSP, AIP Foundation commences a program to train journalists and build capacity for policymakers addressing child helmet use.

2014



The “*Children also need a helmet*” campaign achieves tangible results - child helmet use increases from 18% in March 2011 to 36% in March 2014 in its three target cities.



The NTSC issues the *National Child Helmet Action Plan (NCHAP)* informed by results from “*Children also need a helmet*” campaign.

2015



The National Traffic Police implement a nationwide child helmet enforcement effort from 6-10 April, which leads to a spike in child helmet use rates.



The implementation of new child helmet use guidelines, developed with support from AIP Foundation, commences across all primary schools in 63 provinces.



The U.S. Department of State signs a Memorandum of Understanding with AIP Foundation on the 20th anniversary of VN-US diplomatic relations agreeing to increase child helmet use through public-private partnerships.

2016



NCHAP results in an increase in child helmet use from 36% in March 2014 to 57% in May 2016 in three cities. Rates also increase from 35% in April 2015 to 47% in May 2016 in some provinces.



GRSP supports VINATAS efforts to improve helmet quality management.

2017



Since the implementation of the universal helmet law in December 2007, an estimated **\$3.5 billion USD** in medical cost, lost output, and pain and suffering have been saved. **500,000 head injuries** and **15,000 fatalities** have been averted due to increased helmet use.



Government achievements



Key results



With stakeholder support

A UNIVERSAL HELMET LAW (2007)

On June 29, 2007, the Vietnamese government announced that helmet use would become mandatory for all – drivers and passengers – by the end of the year. Resolution 32 hailed a critical turning point in Vietnam’s battle to reverse the road safety crisis, which had been spiralling out of control. Despite the discrepancies in reported data, it was certain that road deaths were escalating. Estimated road deaths in 2007 ranged between 12,800 and 14,104 – up from 4,907 in 1994 (Hung et al., 2006)

Faced with this challenge, the government passed Resolution 32 as an urgent solution to address the road crash epidemic.

An important first for Vietnam, it stipulated that helmet wearing would no longer be limited to major roads and highways. It would be mandated, and importantly enforced, on all road types – in provinces and cities. As a further deterrent, penalties would increase five-fold – from 20-40,000 VND (equivalent to \$1.24 USD to \$2.48 USD) to 100-200,000 VND (equivalent to \$6.20 USD to \$12.40 USD) (Passmore et al., 2013).

Unlike many of the previous helmet law changes, these amendments did not go unnoticed by the public. They were backed up by a robust and well-coordinated



approach to support implementation of the universal helmet law changes, and were preceded by the nationwide “Wear a helmet. There are no excuses” campaign that shocked the public into really considering the potentially devastating impacts of not wearing a helmet.

The government also took one additional and impressive step that signalled just how serious they were about making this change a success. It was announced that government workers, approximately numbering 4 million citizens, would be required to wear helmets on all roads from 15 September 2007 (Passmore et al., 2010).

How the law was approved and implemented

The NTSC was pivotal in championing the universal helmet law and worked side-by-side with the Ministry of Transport to drive the development of the revised legislation’s articles and obtain agreement from top levels of government.

To support the implementation of Resolution 32, the NTSC engaged various government ministries who each contributed their expertise to specific initiatives that were critical to successful implementation.

For example, the Ministry of Health was given the responsibility of collecting road crash data in hospitals. The Ministry of Education and Training focused on school-based education initiatives (Passmore et al., 2010).

The NTSC continued to collaborate with civil society organisations, nonprofits, and private-sector partners who contributed technical expertise and funding to support the efforts to turn the tide of needless road deaths and injuries.

Importantly, the government also worked nationally with helmet suppliers to ensure that there were sufficient helmets available in stores to supply to customers who would need to buy one to comply with the new laws (Passmore et al., 2010).

The initial phase in the lead up to implementation began with raising awareness and introducing the traffic law.

The NTSC coordinated consultation across Vietnam's 63 provinces to prepare for the implementation of the helmet law, advocating for it as a necessity to reduce traffic fatalities (Passmore et al., 2010). They were then pivotal in engaging the Ministry of Culture and Information to support the "Wear a helmet. There are no excuses" campaign, recognising that social marketing was critical to building the public's awareness and influencing behaviour changes. Through their support in disseminating the campaign via media channels including national television, the national public radio and the local media during rush hour, the campaign's reach significantly increased. This collaborative approach was truly unique in Vietnam, and a significant departure from the usual protocol of government-led propaganda campaigns. It proved to be hugely successful.

The Australian Embassy to Vietnam – a supporter of the VHWC – applauded the NTSC's leadership: **"Vietnam's growing reputation as a dynamic and safe place to visit and with which to do business continues to be undermined by road safety concerns, including the practice of not wearing motorcycle helmets"**, said Australian Ambassador Bill Tweddell. **"Australia has long recognised that investing in prevention, especially with regard to road safety, repays itself many times over in terms of both human development and**

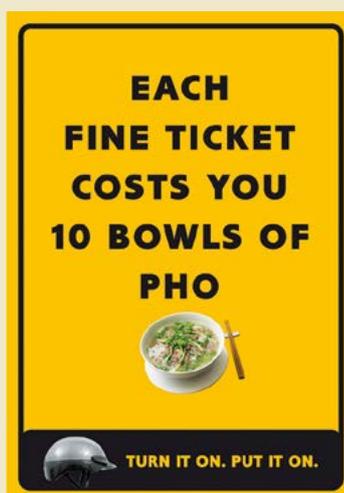
economic costs. Unfortunately the social and economic impact of so many avoidable injuries and fatalities continues to place a development 'brake' that is out of step with Vietnam's progressive agenda on many other fronts. The decision by the NTSC to support this campaign is a welcome sign of Vietnam's recognition of the seriousness of the issue for its people, economy and its international reputation as a safe destination to live and work".

The next phase of the law's implementation focused on enforcement. Following the National Helmet Action Plan, developed by the government in December 2006 in collaboration with Global Road Safety Partnership (GRSP) and AIP Foundation, the Ministry of Public Security moved forward with planning to ensure there would be sufficient traffic police available to support a strong enforcement effort and training traffic police to ensure an effective and sweeping enforcement plan could be implemented. In preparation for the incoming helmet law, traffic police were deployed to patrol and remind road users about the new helmet wearing requirements, which would apply to all motorcyclists on all roads. Starting on 15 December, 2007, traffic police across the country were deployed ready to issue fines that were as much as 10 times higher than previous ones.

BOX 10:

COUNTDOWN CAMPAIGN

In the lead up to 15 December 2007, the Ministry of Culture and Information coordinated a countdown to the law going into effect (Passmore et al., 2010). The campaign focused on educating the public about the helmet law, how a helmet protects the head from a traumatic brain injury, and the exact day when the law would apply and fining would commence. The VHWC supported the efforts with a media campaign comparing fines for non-helmet use to other daily living costs.



Credit: Ogilvy & Mather

15 December 2007

15 December 2007 was no ordinary Saturday. For those involved in advocating for and implementing the universal helmet law, this day was full of anticipation. There was a high level of uncertainty and trepidation about just how much of a difference the law would make overnight with helmet wearing habits across Vietnam. However, the timing was right, and the NTSC and their partners had taken note and implemented lessons learned from previous attempts to increase helmet use. Although they did not know it, this day would mark a significant turning point in Vietnam's journey to improve road safety. Leaders in Vietnam's road safety community were astounded by what they saw.

Mr. Long, the former Chief Secretariat of the NTSC, recalls,

“It was a wonderful moment which exceeded our expectations. Everything changed in one night. The former Minister of Transport and I, together with other people, were at Kim Ma intersection to observe the first day, and almost 100% of people wore helmets on the morning of 15 December 2007.



With careful preparation we had expected that an increase to 70%-80% helmet use might be achievable, but we were surprised to see that everywhere we looked, people were wearing a helmet on that day. More importantly, after 15 December 2007, we saw sustained behaviour change as helmet wearing became a habit for motorcycle riders helping reduce the road toll by more than 1500 fatalities in the following year.”

When recalling that first day, Colonel Duc Le, Deputy Director of Traffic Police under the Ministry of Public Security, is still emotional and impressed by what he witnessed. More than 95% of people on the streets were wearing helmets – a remarkable achievement given that helmet use had been as low as 6% on city streets prior.

“This achievement was the result of a gradual process that required careful preparations and policing to remind road users about wearing a helmet as a daily habit. I never forgot this amazing number,” he said.

Dr Khuat Viet Hung, the current Vice Chairman of the NTSC, highlights key factors that ensured the success of the universal helmet law. These included a strong focus on ensuring public awareness about the revised law and involving other relevant ministries in these efforts. The traffic police were also heavily involved in planning to maximise their role in enforcing the law. Lastly, but certainly not least, the decision to revise and implement the law had been endorsed by the top levels of government. The Prime Minister strongly advocated for the new law and this ensured that it was supported throughout the Communist Party.

BOX 11:

ENFORCING THE NEW LAW - THE PERSPECTIVE OF THOSE ON THE GROUND

In 2003, Pham Van Chien began his career with the Vietnamese traffic police, where he currently serves as a vice captain of Traffic Police Team No. 13. He has been on the forefront of road safety law enforcement and witnessed his country's helmet use journey firsthand. Chien believes the implementation of the universal helmet law implementation marked a turning point in road safety in Vietnam, as it shifted the entire nation's road behaviour and culture.

He remembers that before 2007, wearing a helmet was a foreign concept to those living in cities. People would occasionally wear them in the suburbs and the countryside. Although helmet wearing had become mandatory on some roadways, such as national highways from 2001, most citizens had low awareness of the importance of wearing helmets and were not self-motivated to wear them.

On 15 December 2007, everything changed.

In Hanoi where Chien was based at the time, about 16 loudspeakers were installed at busy intersections throughout the city, broadcasting messages during rush hour encouraging people to wear their helmets. Newspapers and online publications were filled with information about the new law and billboards were hung on buses, at transit stations, in residential neighbourhoods, and at other road crash hotspots.

Chien and his colleagues were also ready and equipped with the knowledge and skills needed to effectively enforce the new legislation. All traffic police attended mandatory orientation workshops, lasting a total of 5-7 days, that trained them in both helmet safety theory and practice lessons. They were also taught techniques for explaining the new regulations and persuading citizens about the importance of them.

Despite being in the same role for a number of years prior, and witnessing previous helmet law changes, Chien had never before seen a campaign that had so significantly affected the population's helmet



wearing behaviours. In the law's first week, in order to give citizens time to get used to the new habit, the traffic police allowed a grace period and provided citizens with a verbal warning about the need to wear a helmet. However, following this period, the law was robustly enforced, with a total of 680,000 fines being issued for non-helmet use in 2008 (Passmore et al., 2010).

Colonel Le, the Deputy Director of Traffic Police Department under the Ministry of Public Security also reflects on two key elements of the government's approach to implementing the universal helmet law that he believes made the 2007 changes so successful where other attempts had failed.

Making helmet wearing compulsory for all civil servants from September 2007, three months ahead of national roll out, was an effective method which set a strong example. It helped to boost national awareness and 'normalised' helmet wearing as a common habit. Secondly, the increase of the fine amount motivated people to think about the financial implications of disregarding the law.

"Before, the fine amount was just 20,000 VND, which some people were prepared to risk incurring," Colonel Le said. "But, when fines increased to between 100,000 to 200,000 VND, equal with the prices of the quality helmet in the market at that time, people were more motivated to choose to buy the helmet and comply with the traffic law."

IMMEDIATE AND LONG-TERM IMPACT OF HELMET USE



The impacts of Vietnam's universal helmet law were literally seen overnight.

Though the lead up to implementation had been well planned and executed, the public's response to this momentous turning point was overwhelming to many. The significant change in helmet wearing that stakeholders witnessed on the morning of 15 December, 2007, exceeded expectations.

Thanks to a hard-hitting awareness campaign - which had been developed with the backing of a committed group of international donors and was disseminated nationally through the government's own media outlets - public awareness of the new law was high.

The government launched an intensive countdown campaign and set a strong example by mandating that their employees all wear helmets starting on 15 September, 2007. Traffic police nationwide were trained and ready to enforce the law. Fines were up to 10 times higher than they had been previously.

On 15 December, 2007, the combined impact of these efforts was evident. With motorcycles making up more than 95% of all registered vehicles on Vietnam's roads, the country's streets and highways transformed into a sea of helmets.

BOX 12:

SETTING THE STAGE FOR AN AMBITIOUS ENDEAVOR



15 December 2007, ushered in a dramatic change on Vietnam's roads.

Prior to the universal helmet law, helmet use varied depending on a number of factors including rural or urban settings, road type, time of day, and who was travelling on the motorcycle.

A study in Hai Duong province found that on inner-city roads, where helmet use was not required by law, as few as **9.54%** of riders wore helmets, compared to rates as high as **59.01%** on national roads in Hai Duong Province, where helmet use was mandated and more likely to be enforced (Hung et al., 2006).

When looking at all road types in Hai Duong Province, helmet use averaged less than 30%. However, helmet use was even lower among **passengers (18.97%) and children (5.23%)**. (Hung et al., 2006).

As momentum toward the law change intensified through the end of 2007, roadside helmet observations conducted in November 2007 across three provinces

– Yen Bai, Da Nang and Binh Duong – found average helmet wearing rates **had increased to 40.1%** (Passmore et al., 2010).

These improvements followed a series of important actions throughout 2007 that proved to be crucial to the law's successes.

- April 2007: The Vietnam Helmet Wearing Coalition launches its hard-hitting, nationwide “Wear a helmet. There are no excuses” helmet wearing campaign with support from the government.
- 29 June, 2007: The Prime Minister announces that helmet use will be universally mandated for all motorcyclists on all roads by the end of the year, and for all government employees three months prior to this date.
- 15 September, 2007: Helmet use is mandated for an estimated 4 million government employees ahead of the nationwide implementation of the impending universal helmet law at the end of the year (Passmore et al., 2010).

Progress in numbers: short-term success beyond 2007

Beyond the initial elation of witnessing such an immediate shift in helmet use, experts questioned whether the public would sustain this new habit.

In April 2008, just a few months after enforcement commenced, roadside observations across four major cities throughout Vietnam - Hanoi, Ho Chi Minh City, Can Tho and Danang - found that adult helmet wearing rates had reached 90-99% or more, and peaked at **99% in Danang** (Pervin et al., 2009). Previously, helmet use rates in these cities had been found to be **as low as 6%** (AIP Foundation & Vietnam National Economics University, 2007)

In June 2008, the study in Yen Bai, Binh Duong and Danang provinces was repeated and found that increased helmet wearing rates had sustained, with compliance ranging from 94% to almost 100% (J. W. Passmore et al., 2010) compared to an average of 40% across the same three provinces just one month prior to the full implementation of the universal law.

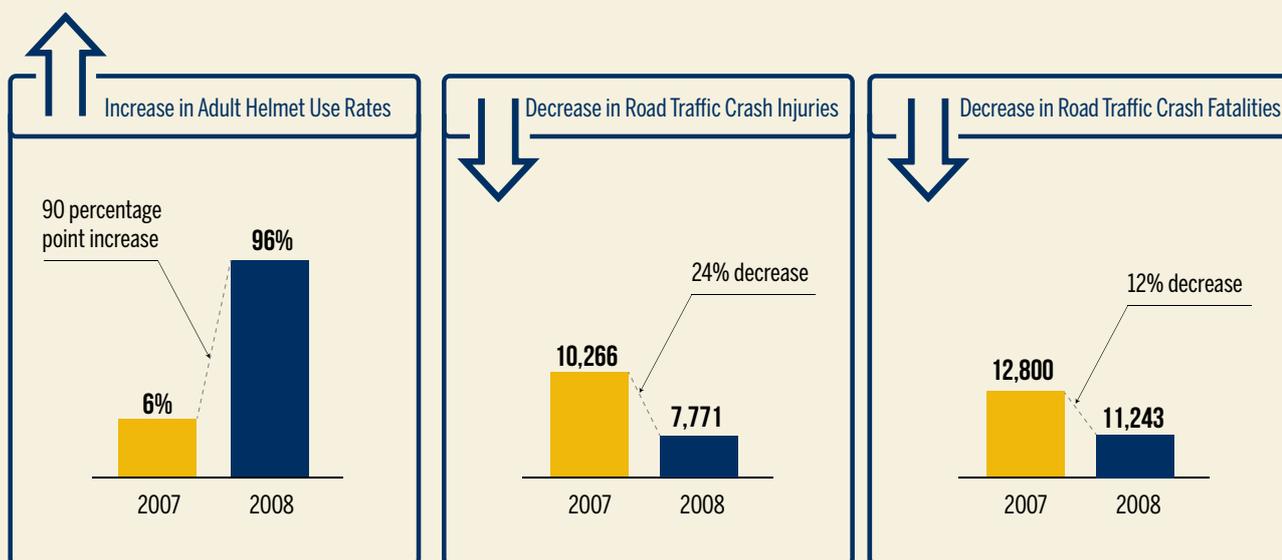
These new helmet wearing habits translated into a reduction in road traffic injuries and deaths.

In the first year following implementation, reported road crash fatalities reduced from **12,800** in 2007 to **11,243** - a **12% reduction in just one year**. Road crash injuries **reduced by 24%** from **10,266** to **7,771** (NTSC reports).

These results were seen despite the rapid increase in the number of motorcycles on Vietnam's roads. Although motorcycle registrations increased by 12% between 2007 to 2008, **fatalities per 10,000 motor vehicles reduced by 22%** and **fatalities per 100,000 people reduced by 13%** (NTSC reports).

Although Vietnam's road crash data is not separated by road user type, it has been estimated that approximately 75% of such fatalities in Vietnam involve motorcyclists (WHO, 2012). Head injuries are the most common global cause of fatal and non-fatal injuries for road crashes involving motorcyclists (WHO, 2004).

FIGURE 8 - IMMEDIATE IMPACTS OF HELMET LAW - 2007-2008



Source: AIP Foundation & Vietnam National Economics University, 2007; Pervin et al., 2009

The number of lives saved and injuries prevented translated into significant cost savings. The economic impact of road crashes had previously been estimated to be almost \$900 million USD per year, amounting to 2.45% of the country's GDP in 2002 (ADB-ASEAN Regional Road Safety Program, 2003).

In the first year following implementation of the universal helmet law, it was estimated that **\$18 million USD in care costs and \$29 million USD in individual income losses** were saved, based on averted lives lost and head injuries. Each individual life saved was equivalent to \$11,000 USD and \$830 USD per avoided non-fatal injury (Olson et al., 2016a). In addition to the emotional devastation that families experience due to road trauma, the economic costs are a heavy burden for most Vietnamese families.

Studies have found that the costs of medical treatment for a non-fatal road crash injury typically exceeds a family's financial means. Many need to borrow or sell assets to cover expenses (Hoang et al., 2008). Based on an analysis of the averted treatment costs in 2008, for most people such costs would have accounted for more than 25% of their per capita income (Olson et al., 2016a).



Other studies have estimated that average hospital costs to treat road crash injuries in Vietnam are \$363 USD per family. The costs of treating motorcycle-related head injuries were 1.41 times higher (2013).

Despite these high costs, it is likely that these calculations underestimate the true impacts of road crash injuries, which can go far beyond the individual healthcare costs. For example, younger family members may have to drop out of school to care for injured family members, or work in place of an injured or deceased family member (Hoang et al., 2008).

Sustaining the results

Since the law was introduced, research has confirmed that adult helmet use rates have remained high. The same study that observed average helmet use at 40.1% in November 2007 in Yen Bai, Danang and Binh Duong provinces was emulated more than three years later in February 2011. It found that helmet use rates had increased to an average 92.5% (J. W. Passmore et al., 2010).



The most recent filmed helmet observations conducted in December 2015 across 15 provinces and in May 2016 across 12 provinces as part of a comprehensive evaluation of Vietnam's National Child Helmet Action Plan (NCHAP) found that adult helmet wearing rates were more than 90% (AIP Foundation NCHAP evaluation, 2016).

Many stakeholders have played a part in these successes.

The government's carefully orchestrated implementation coupled with its allocation of sufficient resources to enforce the law has been critical. The ongoing collaboration between Vietnam's government and international partners who have supported and implemented programs focused on sustaining these successes has also been key.

BOX 13:

MEASURING HELMET USE

To keep pace with emerging public health challenges and to address the leading causes of death and disability, the U.S. Centers for Disease Control and Prevention (CDC) had begun an effort to achieve measurable impact quickly in a few targeted areas. One of those target areas was motor vehicle safety. CDC identified strategies to ensure that progress in this area was made in the U.S. Many of these efforts at CDC have also aided other countries such as those in which AIP Foundation operates.

In 2010, the U.S. CDC began providing technical assistance to AIP Foundation to review its methodologies for measuring the impacts of its school-based helmet promotion program, *Helmets for Kids*. One of the key means of measuring the impact of efforts to increase helmet use has been through roadside helmet wearing observational surveys. Initially this labor-intensive process was prone to error due to reliance on manual counting in the field using a clicker or tracking forms to record helmet use.

To improve accuracy, CDC assisted AIP Foundation to develop a helmet observation methodology that utilises strategic filming of traffic flows. Using video observation enables collection of accurate, reliable data, which can measure the impacts of interventions, such as behaviour change campaigns, policy and enforcement efforts, educational activities, and helmet donations.

Following the development and testing of the video observation methodology in Cambodian *Helmets for Kids* schools, it has been used widely in Cambodia, Vietnam, and Thailand, and even brought to roads outside of Asia. More recently, the methodology has been adjusted for use outside of school environments - for general population observations. In Vietnam, the methodology was applied to measure the impact of the National Child Helmet Action Plan (NCHAP). Researchers recorded the helmet-wearing behaviours of 752,671 students and 627,734 adult drivers on motorcycles across 15 provinces in 2015, and 12 provinces in 2016.

The filming methodology also enabled accurate cross-sectional video observations. Unlike previous roadside counting methods, video observation eliminates the distractions that occur on the street, removes reporting biases, and enables data to be verified by a second party. Data collectors and counters were trained in appropriate camera positioning and recording techniques. A video camera is set up at a carefully selected roadside location to record traffic for a pre-determined time period. The footage is then reviewed frame by frame to identify and record whether each motorcyclist captured is wearing a helmet or not, as well as if the chin strap is buckled.

This methodology has significantly enhanced the data-capturing process by improving the accuracy and quality of helmet use data. In 2015, the U.S. CDC Global Road Safety team received the National Center for Injury Prevention and Control's Honor Award for "International Partnership" which recognised the organisation's collaborative work with AIP Foundation on helmets.

"Thanks to wide scale collaboration, public education, and policy change, motorcycle helmet use in Vietnam increased significantly," said Grant Baldwin, Ph.D., M.P.H., director of CDC's Division of Unintentional Injury Prevention. **"With their tireless efforts to increase helmet use through the Global Helmet Vaccine Initiative, AIP Foundation was a key collaborator in this success."**

According to Erin Sauber-Schatz, Ph.D., M.P.H., team lead for motor vehicle injury prevention at CDC, **"Investing in motor vehicle injury prevention builds a foundation for a strong and healthy society and helps lower the cost of health care. Our work with AIP Foundation demonstrates that global partners working together, even across distant parts of the world, can make a difference and reduce the global burden of road traffic injuries."**

The long-term impact - saving lives

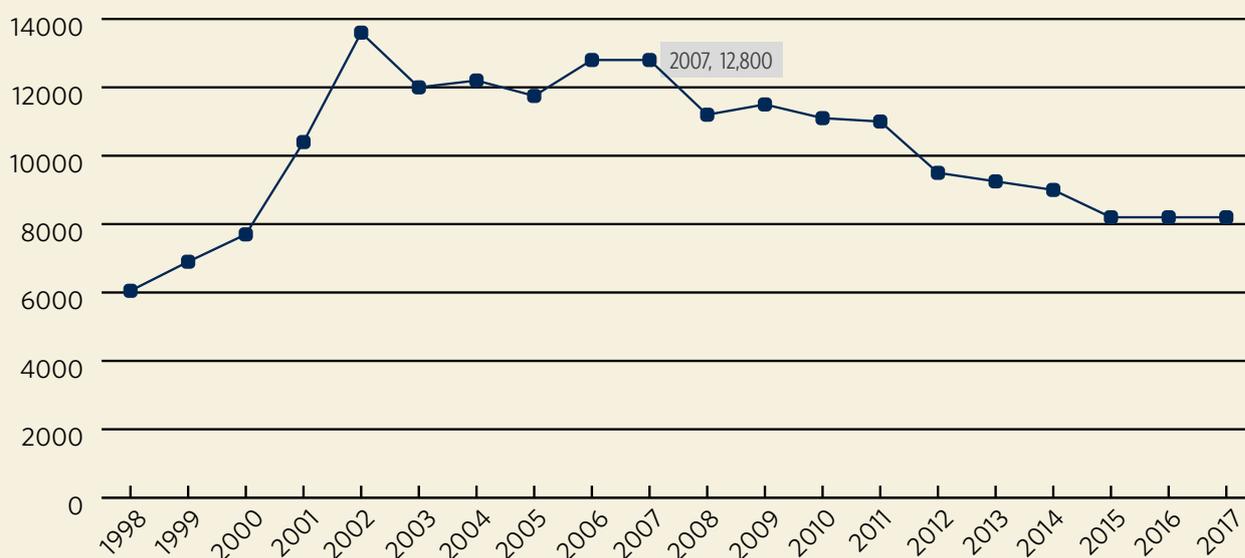
Based on the National Traffic Safety Committee's crash data, road fatalities had been increasing since 1998. Following the implementation of the universal helmet law, the trend turned and reported deaths began steadily reducing year by year.

To determine the estimated cost savings in Vietnam, AIP Foundation has applied the ADB's cost and lives saved calculation model.

Based on the prevention of potential lives lost and injuries that can be attributed to increased helmet use, the nonprofit's most recent estimates are that following the implementation of the universal helmet law (2008-2017), there have been:

- **15,000 fatalities prevented**
- **500,000 injuries prevented**
- **\$3.5 billion USD saved**

FIGURE 9 - REPORTED ROAD CRASH FATALITIES 1998-2017 (VIETNAM NATIONAL TRAFFIC SAFETY COMMITTEE)



For 2017, road crash fatality data was only available for first six months of 2017 at the time of publication, therefore figures have been projected for the remaining six months (July to December 2017) on the basis of previous trends.

AIP Foundation has calculated the investment in helmet activities from January 2007 to December 2008 by all private sector donors, nonprofits and multilateral agencies who contributed to implementation of the universal helmet law at \$2,406,519 USD. This includes education, advocacy, events, public awareness campaigns, research and evaluation activities. It excludes government expenditures, for which figures are not available. Olson et al (2016) estimated that countrywide implementation of a helmet policy would cost the government approximately US\$24

million, not including any amounts offset by collected fines.

International researchers who have explored the impacts of various road safety interventions found that for each 10% increase in helmet usage, one life per 100,000 population can be saved per year (Abbas et al., 2012). Vietnam's experience supports this hypothesis. Helmet use rates increased by 63.4% from 2007 to 2016, saving about 6 (5.8) lives per 100,000 population per year, according to national road crash data.

TABLE 1 - COMPARISON OF TOTAL COST SAVINGS (ALL ROAD CRASHES) VS COSTS SAVINGS ATTRIBUTED TO HELMET USE

Year	Total cost savings (million USD)		Total cost savings by helmet use (million USD)	
	Annual	Cumulative	Annual	Cumulative
2008	552	-	128	-
2009	653	1,205	144	272
2010	857	2,061	175	447
2011	1,105	3,166	215	662
2012	1,521	4,687	322	984
2013	1,807	6,494	404	1,388
2014	2,033	8,527	434	1,822
2015	2,257	10,784	506	2,328
2016	2,423	13,207	557	2,885
2017	2,704	15,911	621	3,506

These figures are calculated by AIP Foundation using information from; ADB-ASEAN Regional Road Safety Program, 2003 Vietnam National Traffic Safety Committee data 1998-2016; World Health Organization, 2015; various helmet use observation studies; Helmet efficacy research (Liu et. al 2008); and population data. Reviewed by Mr Vu Duc Minh, MSE Head of Forecasting Dept, Deputy Director of Airport and Highway Division, Transport Engineering Design Inc., Hanoi.

Quantifying the return on investment for implementing the helmet legislation is important to secure the support necessary and sustain these changes. It also provides a strong business case example for other countries considering similar law changes. Excluding government investment, the implementation of the helmet law over 2 years was \$2,406,519 USD, with the total savings over only 1 year estimated at \$128 million USD, equivalent to a saving of \$53.19 USD for every dollar spent.

CALCULATING COST SAVINGS:

The ADB’s model which AIP Foundation has adopted to calculate cost and lives saved was developed as a method to estimate the costs that arise both directly and indirectly from road crashes in Vietnam (ADB-ASEAN Regional Road Safety Program, 2003). It was an important step in quantifying the economic impacts that the road crash epidemic was having on the country’s development. This evidence helped spur prioritising plans to address it.

While there were many costing methodologies that could have been applied, the ADB calculation model adopted the Gross Output method to estimate the costs associated with road crashes in Vietnam, a method

which many developing countries use as starting point as it has a strong theoretical base (ADB-ASEAN Regional Road Safety Program, 2003). Other costing models include the “Human Capital”, “Net Output,” “Life Insurance,” “Court Award,” “Implicit Public Sector Valuation,” and “Willingness-to-Pay” methods.

Using the Gross Output method, the ADB calculated that the national cost of road crashes in 2002 amounted to nearly \$900 million USD annually, representing 2.45% of Vietnam’s GDP (ADB-ASEAN Regional Road Safety Program, 2003).

Key inputs used by the ADB to determine the cost of road crashes in Vietnam included:

1. 30 years as the average age of victims in fatal accidents. With a retirement age of 58, the average number of years foregone by a fatal accident is 28 years.
2. One month of average time away from work
3. The average gross domestic product per capita
4. Data collected from insurers, traffic police, hospitals, and other national surveys to estimate administrative costs
5. Human costs, such as pain, grief, and suffering.

IMMEDIATE AND LONG-TERM IMPACT OF HELMET USE

Today, despite the progress made to improve road safety in Vietnam, the economic burden of road crashes continues to grow and in 2013 was estimated at 2.9% of GDP (UNESCAP, 2017).

A key criticism of the applied costing model is that it underestimates the true impact of road trauma because it does not consider the full scale of costs, which are often hampered due to under-reporting of losses incurred arising from a road crash. This includes measuring the full potential of someone's life, thus undervaluing the economic and societal value of preventing road crashes (ADB-ASEAN Regional Road Safety Program, 2003; Ainy, Soori, Ganjali, Le, & Baghfalaki, 2014). However, in low-and middle-income countries like Vietnam a lack of data is a common issue. Obtaining the information necessary to make more accurate calculations is challenging.

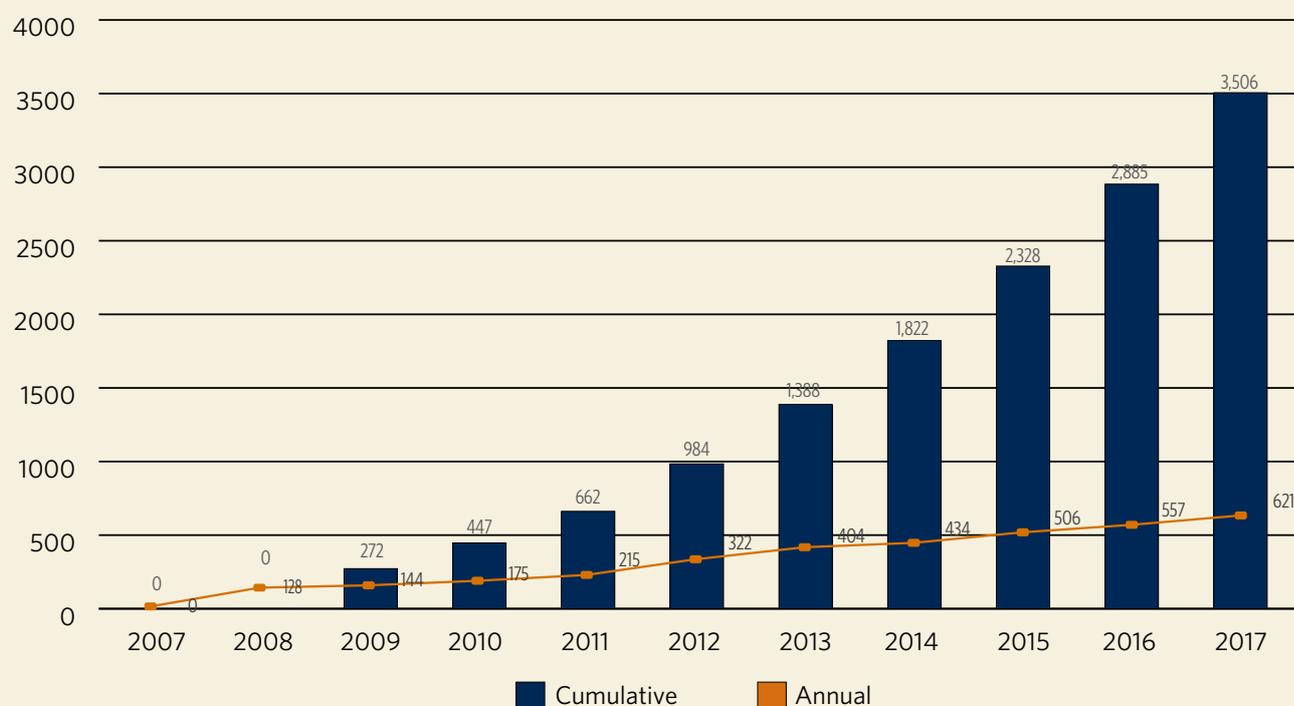
A more comprehensive costing methodology commonly used in high-income countries is the Willingness-to-Pay method. This assesses the costs that individuals, their families, and their friends, as

well as greater societies, are willing to bear to reduce the risk of death or injury, in addition to calculations of road crash risks. Although this method is more accurate, it requires intensive research and is rarely applied in low- and middle-income countries (ADB-ASEAN Regional Road Safety Program, 2003).

For the purposes of this report, AIP Foundation has estimated the lives and cost savings using the ADB's Gross Output method. Police data (NTSC reports) has been used as it is considered the most consistently collected data available for the estimation.

The estimated cost saving due to increased helmet use following the universal helmet law introduction in 2007 is \$3.5 billion USD in medical costs, lost output, and pain and suffering, based on a calculated averted 500,000 head injuries and 15,000 fatalities (see Figure 10). This is the sum of annual cost savings from 2008 to 2017. An annual cost saving includes the estimated costs of prevented fatalities and prevented injuries due to head trauma as a result of increased helmet use.

FIGURE 10 - COST SAVINGS FOLLOWING HELMET LAW INTRODUCTION (BY YEAR AND CUMULATIVE) IN MILLION USD



ISSUES AND LOOPHOLES



CHILD HELMET USE

Despite the intent of the 2007 helmet law being universal, there was little clarity about who would be fined when a child was not wearing a helmet. Other issues also impeded child helmet use, including misconceptions about the safety of helmets for children. As a result, child helmet wearing rates did not increase in the same way as those of adults. Child helmet observations in April 2008 found rates ranged from 15-53% depending on the age of the child (Pervin et al., 2009). Research conducted in 2009 and 2010 found that the problem persisted. The majority of children – 64.2% in 2009 and 68.9% in 2010 – did not wear helmets when travelling to and from school, with the lowest rates in Hanoi at 16.9% (P. Nguyen et al., 2012). It wasn't until 2010 that the enforcement loophole was closed, which made helmet use mandatory for children aged 6 years and older. However, increasing child helmet use has proved to be a complex challenge.

FASTENING

Despite the significant uptake in helmet use, initially there was no means to mandate that helmets must be fastened. Many people just put helmets on their heads to meet the legal requirement, potentially unaware that

an unfastened helmet's effectiveness is significantly lower (Ramli & Oxley, 2016). This loophole was closed in late 2008 when the 2007 legislation was amended to clarify that a helmet must be appropriately fastened to avoid a fine.

QUALITY

Another key issue was promoting awareness of helmet quality. Studies have found that as few as 4.4% of helmets met all the requirements to comply with Vietnamese helmet standards, which can undermine the impacts of increased helmet use throughout the country (Hung, 2008).

A Bloomberg-funded project in Ha Nam and Ninh Binh Provinces sought to raise awareness about the importance of correct, quality helmet use. It implemented capacity building activities for police to improve enforcement of this issue. The results of this initiative were impressive. From June 2011 to December 2014, substandard helmet use declined from 47% to 11% in Ha Nam Province and 18% to 5% in Ninh Binh Province. Correct helmet use climbed, with the most significant increases in Ha Nam Province from 34.3% to 76.9%, and from 68.9% to 72.2% in Ninh Binh Province (Bao et al., 2017).



The trouble with the numbers

Accurate and reliable road fatality and injury data is crucial to understanding whether road safety interventions actually result in lives saved. It allows trends in crash rates, fatalities and injuries to be monitored and compared with other countries and enables investments to be targeted toward evidence-based interventions. Good data supports advocacy efforts for road safety to be a priority of governments. However, collecting road crash fatality data is complex and requires robust collection methods, processes, and definitions. Globally, data comes from various sources and systems. This is usually a combination of police, transportation, healthcare, and death registry records. However, where these sources are not integrated it can be challenging to build the complete, accurate picture of road crash casualties.

It is not uncommon for road crash victims to experience multifaceted injuries. Death may not occur immediately, which compounds the challenge of capturing accurate data. Research has also found that road crashes that occur within city limits, and those

involving lightly injured victims, motorcyclists, car passengers, or the elderly are less likely to be reported (International Transport Forum, n.d.).

Though the number of reported road crash fatalities has decreased in Vietnam since the introduction of the universal helmet law, there are limitations with the quality and collection of data. The NTSC's officially reported data only includes fatality numbers collected via the traffic police. This is predominantly limited to information collected at the scene of a crash, although the NTSC's definition includes fatalities within 7 days (WHO, 2015). Road crash casualties may end up in hospitals but will never be known to the police and there is no reliable system for traffic police to follow up and capture these casualties. The incompleteness and poor quality of hospital data also limits its availability and usefulness due to the lack of integrated reporting. The documentation and coding practices regarding fatalities certified at hospitals in Vietnam are often poor. Further to this, not all road crashes result in victims attending hospital, and deaths that are certified by another agency will not be captured by hospital systems.

In an effort to address some of the known data issues and more accurately measure the impact of the universal helmet law, the WHO provided support to Vietnam's Ministry of Health in 2007 as part of the Vietnam Road Traffic Injury Prevention Project (VRTIPP). This initiative, which was supported by the Bloomberg Foundation, included activities to improve the collection of road crash data at hospitals (H. T. Nguyen et al., 2009). The program was ambitious. It initially included 20 hospitals and later expanded to 100 in 63 provinces and cities, maintaining a focus on recording more detailed information about road crash victims including road user type, head injury information, presence of a helmet, and alcohol use (The Social Science Research Council, 2010). Despite these hopeful efforts, data collection processes have weakened over time and the scale of the program has not been maintained.

Another key issue that impacts data collection, particularly in relation to helmet use, is that patients are often reluctant to admit that they were not wearing a helmet. This can affect insurance payments and result in legal consequences.

The quality and reliability of reported cause of death in Vietnam is also variable between agencies. In an attempt to gain a better understanding of the impacts of road crashes, a study was undertaken from 2008 to 2009 using a sample of national mortality reports representing approximately 3% of the population (Ngo et al., 2012). Road crashes were the leading cause of mortality among males ages 15 to 49 years old. 58% of deaths where road user type was recorded were motorcycle users. 25% were categorised as 'other/ unspecified'. The study found that head injuries were the direct cause of death for 78% of motorcyclists. (Ngo et al., 2012). This study provided a comprehensive picture of the main victims of road crashes and also reaffirmed the need to prevent head injuries, however it used resource-intensive means of accessing data that are not sustainable without improved systems.

Although the global standard is to include all related fatalities that occur within 30 days of a road crash, in Vietnam it is difficult to track and consolidate such data. There are poor links between the numbers collected by traffic police and those of other agencies. This can result in discrepancies that may include under-reporting and duplication of statistics (Ha, 2016; Le et al., 2002). Injury data is even more problematic as injuries, both serious and minor, are often not captured in either police or hospital systems, however, hospital figures are likely to be more comprehensive. In 2007, less than 10,300 non-fatal road crash injuries were reported in NTSC's national road crash statistics compared to almost half-a-million reported by the Ministry of Health for the same year (Olson et al., 2016).

The issue of under-reporting of injuries is not isolated to Vietnam. Studies in neighbouring Laos found that road crash injuries were significantly under-reported with police reporting less than half as many injury cases as the number reported by hospitals (Slesak et al., 2015). Interestingly, Vietnam also does not report on serious and minor injury data separately, despite neighbouring countries having systems to capture this data (Wijnen & Stipdonk, 2016).

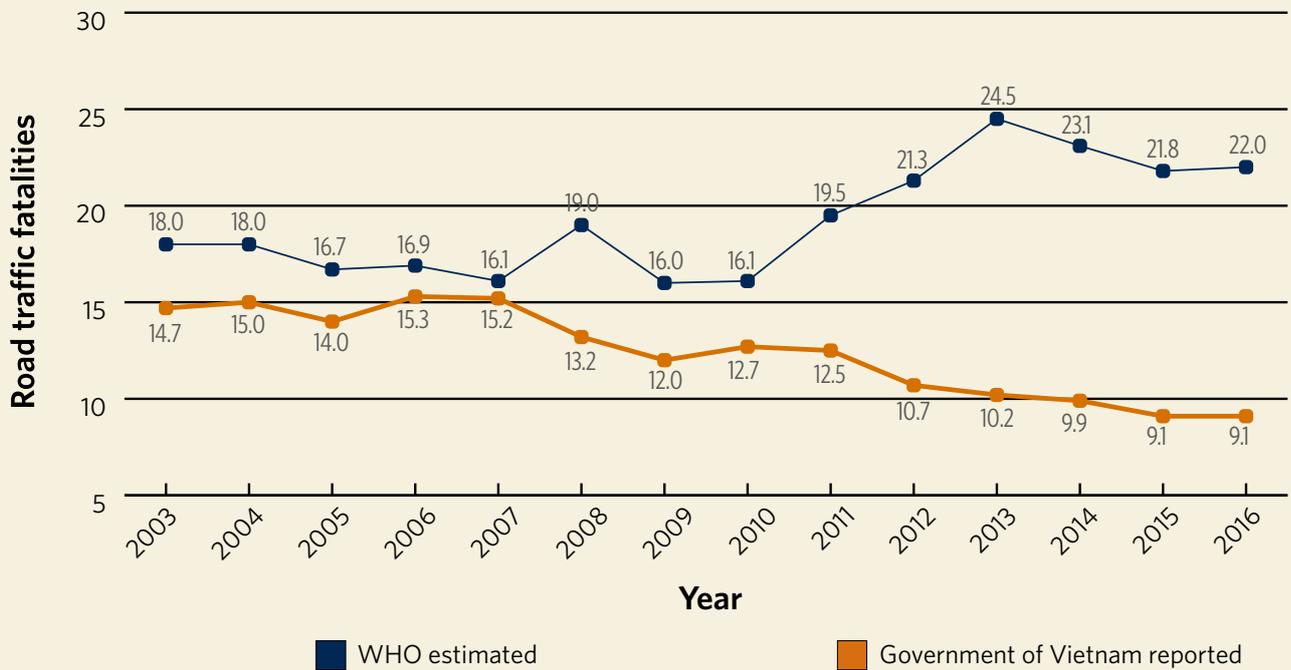
The importance of injury data should not be under appreciated. A costing study conducted by Wijnen and Stipdonk (2016) found that injuries contribute an average of 50% of road crash costs in both high income and low- and middle-income countries. Neither the NTSC, nor the Ministry of Health publish injury-level data. This scarcity of data makes it challenging to quantify the scale of road safety issues and the effectiveness of measures to address them. However, the WHO has estimated that for every person that dies in a road crash at least 20 others sustain non-fatal injuries (WHO, 2015). Many of these injuries will go on to become permanent disabilities, another important piece of data that is currently not available.

For global reporting purposes, the WHO's Global Road Safety Status Report (GRSSR) attempts to address these limitations by consulting with National Data Coordinators (NDCs) to understand potential data discrepancies. The numbers undergo a validation process, which aims to resolve data conflicts through discussion and, when appropriate, includes the submission of further information and legal documents. For Vietnam's contributions to the GRSSR, data collected by both the NTSC and the Ministry of Health are considered. However, the discrepancies between these two data sets are significant (see figure 11). The WHO applies different methods to estimate deaths due to road crashes depending on the data available for each country. In the latest report (2015), the primary estimation method used is death registration data. However the estimation method used in Vietnam relies on other sources of death information due to inadequate death registration data. Vietnam's data also does not include deaths by road user category in the GRSSR, yet notably this information is available for Vietnam's neighbours, Cambodia, Laos and Thailand.

Integration of police and hospital data on road crashes is essential to provide a complete picture of the situation and allow better international comparisons. Linking these databases, although a very challenging undertaking, is essential to guide the way forward in Vietnam.

IMMEDIATE AND LONG-TERM IMPACT OF HELMET USE

FIGURE 11 – COMPARISON OF FATALITY FIGURES AND DATA DISCREPANCIES (COMPARING NTSC AND WHO ESTIMATES (USING MINISTRY OF HEALTH DATA))



Source: Government of Vietnam; WHO.



BOX 15:

CASE STUDY: HELMET USE AND HEAD INJURIES AMONG HOSPITAL PATIENTS



Although reducing head injury-related deaths and fatalities is the key objective of promoting helmet use, in Vietnam there have been few studies that have examined the correlation between helmet use and head injuries. One of the key barriers to undertaking this type of study is that the data collected at both the scene of the road crash and in hospitals is not comprehensive, inconsistently collected and not well coordinated between agencies.

Shortly following the implementation of the universal helmet law, the Ministry of Health conducted a study with 20 hospitals to compare the health outcomes of road crash-injured patients in the three months prior and three months following the implementation of the universal helmet law. Across 49,782 road crash

victims, the study found a statistically significant difference following the first three months of the law's enactment. The risk of head injury had decreased by 16% and the risk of death by 18% (J. Passmore, Thi, Tu, Luong, & Duc, 2010).

There were a number of limitations acknowledged, including that the study assessed all road crash patients, not only motorcyclists, and was unable to correlate to helmet use. However, based on the fact that motorcycles account for 95% of registered vehicles, and that helmet observations around Vietnam were showing significant increases in adult helmet use, the researchers drew the conclusion that the introduction of the universal helmet law had a positive impact on head injuries and road deaths (J. Passmore et al., 2010)

A closer look at two hospitals: 2007 - 2016

For the purposes of this report, road crash cases were reviewed from two major trauma hospitals in Vietnam to determine the impact of helmet wearing on health outcomes since helmet use was universally mandated in 2007.

To assess this, 4,200 road crash cases (85% motorcycle-related) were reviewed from Viet Duc Hospital in Hanoi and Hai Duong Hospital in northern Vietnam. Cases from the first quarters of 2007, 2011 and 2016 were collected from both hospitals.

The number of cases assessed from each hospital were:

- 2,100 from Viet Duc
- 2,100 from Hai Duong

Cases were selected using systematic sampling and reviewed to gather as much information as could be found in the patient's records. This included demographic information as well as information on the details of the road crash and the patient outcomes, particularly in relation to head injuries.

Key findings of the study were that between 2007 and 2016:

1. Helmet use increased from 36.0% to 75.2%.
2. Among motorcycle riding patients in the sample, head injuries decreased by 9.4%.

Among those who wore helmets:

3. moderate head injuries decreased by 11.8%.
4. severe/head injuries decreased by 7.3%.

Overall, across all road crash cases assessed between 2007-2016, 85% of road crash patients were motorcyclists.

The majority of patients were aged between 15-59 years, with 46.6% aged 15-29 years and 42.2% aged 30-59 years. 77% of patients were male and 23% were female.

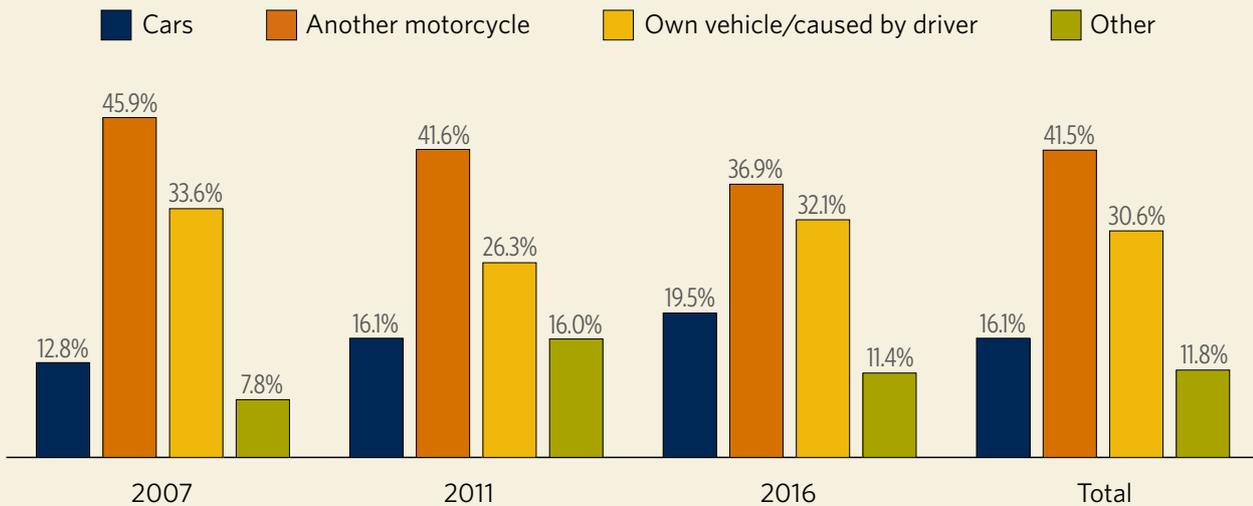
FIGURE 12 - ROAD CRASH CASES: AGE GROUP



CAUSES

Data about the vehicle at fault in road crashes, as reported by patient or family, show that another motorcycle was identified as the main cause (41.5%), followed by own vehicle/caused by driver error (30.6%), and then cars (16.1%). Reported causes have fluctuated both up and down over the data collection period for all vehicle types, except for the category of cars which have gradually increased as a reported cause of road crashes across the study period.

FIGURE 13 – ROAD CRASH CASES: REPORTED VEHICLE AT FAULT



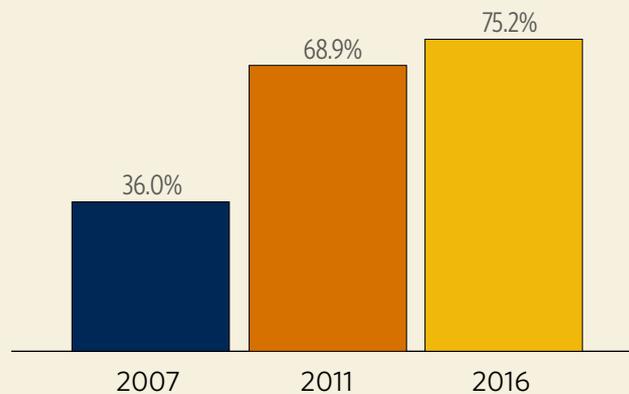
HELMET USE

One of the key reasons for this study was to examine whether hospital data showed evidence of increased helmet use among patients following the universal helmet law, and to understand the impact this had on head injuries and patient outcomes. Over the three periods examined – Q1 from 2007, 2011, and 2016 – hospital records clearly show that the number and proportion of motorcycle casualties wearing helmets has increased year on year.

In early 2007, prior to the universal helmet law only 36.0% were wearing a helmet. By 2016, this number had increased to 75.2%.

The upward trend in helmet use since 2007 in the patient sample correlates with the trend of increased helmet use in Vietnam's general population, although reported helmet use is lower among the patient sample than most recent observed adult helmet use rates which averaged 90.4% across twelve provinces in Vietnam in May 2016 (AIP Foundation/NCHAP data).

FIGURE 14 – HELMET USE AMONG THOSE TRAVELLING ON MOTORCYCLES



HEAD INJURIES

In 2016, head injuries in the patient sample were reduced from 64.0% of motorcycle casualties to 54.6% of cases – a 9.4% reduction since 2007.

An unexpected finding was that although helmet use among patients in the sample increased by 32.9 percent points between 2007 and 2011, head injuries among all motorcyclists (those with, without, or unknown helmet use status) increased slightly over the same period, from 64.0% of motorcycle casualties in 2007 to 73.7% in 2011.

FIGURE 15 - REPORTED HEAD INJURIES AMONG THOSE TRAVELLING ON MOTORCYCLES

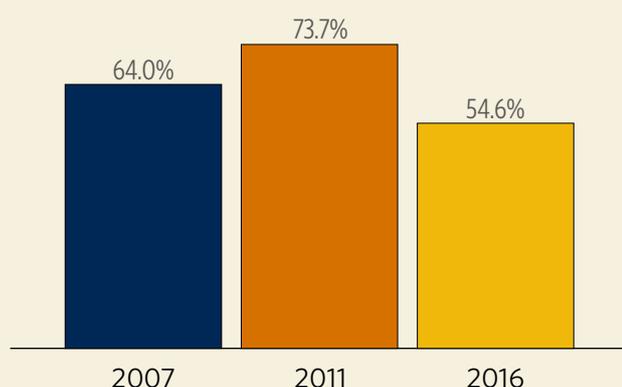


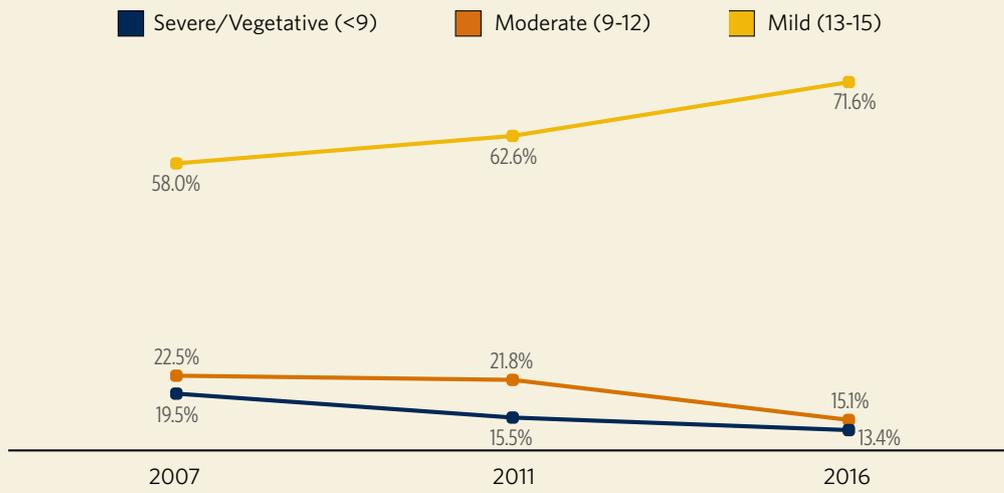
TABLE 2 - HELMET USE VS HEAD INJURY AMONG THOSE RIDING ON MOTORCYCLES BY YEAR

Year	Helmet use	Head injury (Number)		Head injury (%)		Total sample
		Yes	No	Yes	No	
2007	Yes	134	24	84.8	15.2	158
	No	221	61	78.4	21.6	282
	Unknown	396	337	54.0	46.0	733
	Total	751	422	64.0	36.0	1173
2011	Yes	184	0	100.0	0.0	184
	No	76	7	91.6	8.4	83
	Unknown	610	304	66.7	33.3	914
	Total	870	311	73.7	26.3	1181
2016	Yes	144	114	55.8	44.2	258
	No	47	37	56.0	44.0	84
	Unknown	456	388	54.0	46.0	844
	Total	647	539	54.6	45.4	1186
Total	Yes	462	138	77.0	23.0	600
	No	344	105	76.6	23.4	449
	Unknown	1462	1029	58.7	41.3	2491
	Total	2268	1272	64.1	35.9	3540

HEAD INJURY SEVERITY

The Glasgow Coma Score (GCS) - an internationally used standardised tool to measure severity of head injuries has been captured for the majority (95.2%) of head injured patients riding on motorcycles. Overall, for all head injured patients, the majority of cases (63.6%) were recorded as a mild GCS, followed by moderate (20.2%) and severe (16.3%). Severe/vegetative cases have decreased since 2007. The graph below shows the breakdown by year.

FIGURE 16 - HEAD INJURY SEVERITY (GCS) AMONG THOSE RIDING ON MOTORCYCLES BY YEAR



A detailed breakdown of head injury severity compared to helmet use is outlined in the table below (Table 3). However, it is important to note that a large group of motorcyclists with an unknown helmet use status impacts the reliability of these findings, with 70.5% of reviewed cases having no information regarding helmet use. There is also an overall lack of supporting information available to explore the factors contributing to the severity of head injuries such as helmet quality, speeding, and road condition. Although this level of detail would help improve understanding of contributing factors, it is not collected at the scene of the road crash or at hospitals.

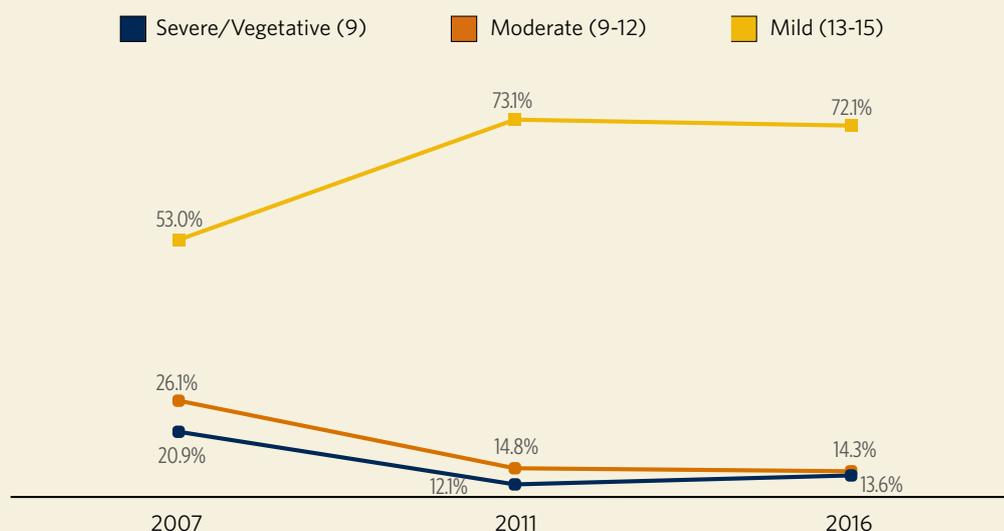
IMMEDIATE AND LONG-TERM IMPACT OF HELMET USE

TABLE 3 - HELMET USE VS HEAD INJURY SEVERITY (GCS) AMONG THOSE RIDING ON MOTORCYCLE BY YEAR

Year	Helmet use	Glasgow scale (Number)			Glasgow scale (%)			Total sample
		Severe/ Vegetative (<9)	Moderate (9-12)	Mild (13-15)	Severe/ Vegetative (<9)	Moderate (9-12)	Mild (13-15)	
2007	Yes	28	35	71	20.9	26.1	53.0	134
	No	50	52	117	22.8	23.7	53.4	219
	Unknown	62	75	229	16.9	20.5	62.6	366
	Total	140	162	417	19.5	22.5	58.0	719
2011	Yes	22	27	133	12.1	14.8	73.1	182
	No	13	18	44	17.3	24.0	58.7	75
	Unknown	96	139	351	16.4	23.7	59.9	586
	Total	131	184	528	15.5	21.8	62.6	843
2016	Yes	19	20	101	13.6	14.3	72.1	140
	No	6	8	31	13.3	17.8	68.9	45
	Unknown	55	62	296	13.3	15.0	71.7	413
	Total	80	90	428	13.4	15.1	71.6	598
Total	Yes	69	82	305	15.1	18.0	66.9	456
	No	69	78	192	20.4	23.0	56.6	339
	Unknown	213	276	876	15.6	20.2	64.2	1365
	Total	351	436	1373	16.3	20.2	63.6	2160

Since 2007 and the introduction of the universal helmet law there has been an increase in cases with mild GCS and a decrease in moderate and severe/vegetative GCS as shown in the graph below:

FIGURE 17 - HEAD INJURY SEVERITY (GCS) AMONG PATIENTS WEARING HELMETS



Helmet quality is a key concern in Vietnam. Researchers in 2011 found that only 18.9% of helmets met required standards - with impact testing being the major failing (WHO & Hanoi School of Public Health, 2013). Potentially, the reduction in head injury severity since 2007 among patients who wore a helmet could be due to improvements in helmet quality over time. However this could not be verified through the data collected by hospitals in this sample which did not adequately assess helmet quality.

In an attempt to understand if helmet quality had an impact on patient outcomes in this patient sample, data was analysed in relation to helmet condition. Among head injured patients who wore a helmet (259 patients), only 7% reported a broken helmet. In the majority of head injury cases (57%) the condition of the helmet was not noted or was unclear.

BUCKLE STATUS

Another issue which affects a helmet's efficacy is whether the helmet was buckled. For a helmet to be effective, it must be fastened. An initial loophole, which allowed people to wear helmets without buckling was rectified through an amendment to the legislation in 2008. Among patients who reported wearing a helmet, buckling was found to be consistently high with 94.6% of all recorded cases, even prior to the law amendment.

DEATHS

Across all years and hospitals assessed, amongst motorcycle users there were 13 cases who were discharged from hospital to die at home, 12 of which were due to head injuries. A further 9 cases died in hospital, all due to head injury. Helmet use was not reported in any of these fatality cases.

Hospital data collection limitations

Road crashes are one of the world's leading public health challenges, particularly in developing countries. Collecting accurate data is important to understand the scale of the problem and develop appropriate policy responses. This kind of health information can be used to prioritise disease prevention activities and to allocate scarce resources for services, health monitoring and programming. The United Nations (UN) and World Health Organization (WHO) encourage member countries to employ a systematic method for the collection of in-country statistics to promote standardised injury reports, including for road crash cases.

Although hospital data collection processes were implemented in Vietnam in 2007 as part of a program to improve road crash data at more than 100 hospitals, in many cases these processes have not been sustained, or are not prioritised. A lack of awareness about the value of road crash injury data from the levels of hospital management through to

data collectors all have an impact on the quality of reporting. Clinical staff are required to record a lot of information about patients and may not see the value in recording detailed information from a patient or their family about the crash, such as helmet use, particularly in traumatic circumstances. However, without this information it is difficult to obtain a reliable understanding of the impacts of helmet use on patient outcomes.

In the analysis of hospital cases in this study, helmet-wearing status was unclear or not recorded in 70.5% of cases. The lack of data for such a large proportion of the patient sample was a significant limitation of this study.

Prioritising and improving road crash data collection process in hospitals, including helmet use data, would be an opportunity to improve the understanding of the linkages between helmet use and head injuries.

BOX 16:

CASE STUDY: A PERSPECTIVE FROM THE COALFACE



Dr. Nguyen Duc Chinh witnesses the real-life consequences of road crashes every day. He works as a surgeon at Viet Duc Hospital in Hanoi, where he leads road crash injury prevention efforts and monitors all head injury cases, especially those resulting in traumatic brain injuries. He noticed dramatic changes in his work during the first few months following the implementation of the 2007 universal helmet law. But, Dr. Chinh still treats many patients today with serious, road crash-related injuries.

According to reports from Viet Duc Hospital, 85% of road crash fatalities it treats are due to traumatic brain injuries. As staggering as these numbers are, one of Dr. Chinh's primary concerns is with how this data is collected. He cites that it's very possible that there are discrepancies and inconsistencies in the data collection efforts. Without accurate information, it's challenging for stakeholders to understand the gravity of the problem and institute effective interventions. Dr. Chinh is still collecting information on road crashes based on the model set by the Ministry of Health in 2008. However, the data he is collecting does not record the cause of the incident. In many cases, victims tend to defend themselves and insist they did

not violate the law. This makes it difficult to identify when victims were wearing substandard helmets or no helmet at all, as they are afraid to admit they did something wrong.

"This information plays a very important role in shaping policy, in which the human consciousness is an aspect that needs special attention," Dr. Chinh said. He added that accurate identification of the main causes of crashes, and whether victims violated the law, also helps other parties, such as insurance companies and the police.

The National Traffic Safety Committee usually develops reports based on information from sources such as the police, Department of Public Transportation and public works. But, this data doesn't match what's collected at the hospital itself. One reason for this discrepancy is that the National Traffic Safety Committee includes victims killed on the road, unlike the hospital. Dr. Chinh believes the government should develop an injury monitoring system to ensure consistent data collection across agencies. This is a critical project, as the current numbers may be underestimating the real, human toll of road crashes across Vietnam.

PROTECTING THOSE WHO NEED IT MOST



BOX 17:

A MOTHER'S REGRET

Each year, Vietnam celebrates the Lunar New Year, known nationwide as Tet. Millions travel to visit family in the countryside and take part in the weeklong festivities. For many, this is a joyous time filled with parties, great food, and catching up with loved ones. But, in 2012, Ms. Lan's Tet memories were stained with loss.

"My kids asked to go to the countryside to celebrate Tet. I didn't want to let them go," she said. Ms. Lan had two daughters – one who had recently graduated college and a 9 year old. Both girls were excellent students and committed themselves to their studies. Though the family was poor, Ms. Lan's children were determined to persevere and lift themselves out of poverty. The eldest daughter was even preparing to start her own business in the months following the New Year.

While on their trip, the two girls went to a karaoke club with family and friends. Ms. Lan's eldest daughter was driving herself and her younger sister home on a local road when a speeding motorcyclist cut her off. Startled, she braked as quickly as she could to avoid a crash. But, there was nothing more she could do – the other motorcyclist collided into her. The impact of the crash was severe. Both girls were thrown from the vehicle and their heads hit surrounding objects. The eldest daughter died instantly, while the other was transferred between hospitals and passed away a few days later.

"I never imagined it was possible for my children to die this way," Ms. Lan said. In Vietnam, parents just like her utter these words all too frequently. Road crashes are the second-leading cause of death for children ages 5-14 and the main cause of death for 15-29 year olds. In many cases, these casualties are due to either not wearing a helmet or wearing one that does not meet the quality standards. Ms Lan knows that both her daughters had helmets, although they were cheap low quality ones, but she's still unsure whether they were wearing them at the time of the crash.



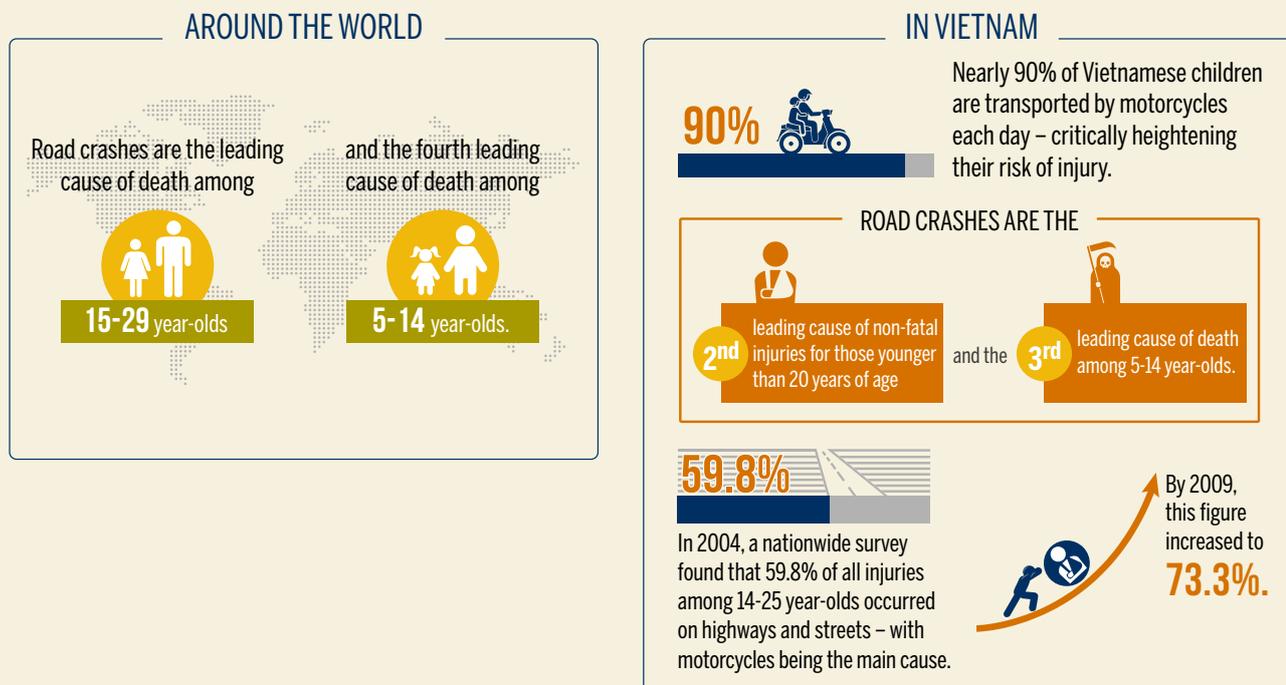
Researchers have found that low enforcement rates are another key reason that many children do not wear helmets. "When we go out on motorcycles without helmets, policemen do not fine. Therefore, it is not necessary to wear one," one secondary school student in Hanoi said.

Before the incident, Ms. Lan owned a small soup shop where her daughters helped out when they could. She has been unable to work since. "Now there's nothing to say about my life, I live day by day," Ms. Lan said. She devotes her time to praying and has become a vegetarian in memory of her daughters. She struggles to find meaning in her life.

Though Ms. Lan will never get her daughters back, she has become an active road safety ambassador to inspire others to invest in protecting their children. She hopes that her experiences can be a valuable lesson to parents throughout Vietnam so they don't have to feel the same pain that she does.

"My loss is overwhelming. You can reclaim lost objects, but deceased family members are gone forever. I hope nobody experiences the same sorrow I have," Ms. Lan said. "I hope parents will protect their children from such incidents."

FIGURE 18 – IMPACT OF ROAD TRAFFIC INJURY ON YOUNG PEOPLE



Source: Center for Women's Studies, 2011; Institute for Health and Metrics and Evaluation, 2016; Le & Blum, 2013; UNICEF & Ministry of Labour, 2010; WHO, 2017

Child helmet use lags behind

The introduction of Vietnam's universal helmet law in December 2007 – which applied to all riders on all roads – was heralded as a turning point in Vietnam's battle to prevent needless road deaths and injuries. Many hoped it would be a significant step toward protecting the country's youngest generations.

Following the introduction of the law, adult helmet use surged to 90-99%, depending on locality, and has sustained such high rates since (Pervin et al., 2009). However, helmet observation studies conducted in early 2008 – just a few short months after the implementation of the new laws – found that child helmet wearing rates were significantly lower, ranging anywhere from 15-53% (Boufous et al., 2012; Pervin et al., 2009).

Those aged 14-25 years old had more promising helmet wearing rates, with self-reported use increasing dramatically from 26.2% in 2004 to 73.6% in 2009 overall. The greatest increase was found among young adults ages 22-25, with a jump from 35.9% to 82.7% (Le & Blum, 2013).

Before the legislation, urban motorcyclists had been less likely to wear helmets because helmet use was only mandatory on select roads, primarily major highways (Le & Blum, 2013; Nguyen et al., 2009). Therefore, it was encouraging that there was significant improvement in helmet use amongst urban youth, with the greatest increases found among urban females – from 21.4% to 89.3%, followed by 25.7% to 79.8% amongst urban males.

However, despite many stakeholders' optimism that child helmet use would surge along with that of adults, it became evident early on that this would not be the case. Two unanticipated yet key issues had arisen. The first was related to the drafting of the legislation itself.

Though Resolution 32 had mandated helmet use for all, police were unable to effectively enforce helmet use for children. Children under the age of 16 years could not be issued a fine and there was no provision for the driver to be liable as the responsible adult. For those aged 16-18 years, the fine was half the amount of an adult fine and enforcement among this age group was rare (The Social Science Research Council, 2010).

In addition to enforcement hurdles, false information about the detriments of child helmet use was published in several media outlets. Soon after the implementation of the law, articles were published that suggested wearing helmets could damage children's necks. Like wildfire, these myths spread and helmet use among children plummeted (Pervin et al., 2009).

With the Vietnam Helmet Wearing Coalition's support, public awareness campaigns continued beyond the implementation of the universal helmet law to reinforce helmet use through TV and other media, outdoor concerts and celebrity helmet ambassadors. In an effort to address lagging child helmet use, there was a strong focus on promoting child helmet use, as well as increasing public awareness about the importance of helmet quality and helmet fastening.

"The current situation cannot continue. Far too few children are wearing helmets and far too few parents realise how dangerous this is," said Peter Lysholt Hansen, Danish Ambassador to Vietnam. "The National Helmet Wearing Campaign will focus exclusively on child helmet wearing in the next few months. We intend to make sure every parent in Vietnam knows that every child on a motorbike needs a helmet."

"It's wonderful to have the support of such major figures in Vietnamese and global pop culture", he continued. "Vietnam is an overwhelmingly young, vibrant country, and we want to reach out to that generation now to build their perceptions of basic road safety."

However, a study of helmet wearing rates across 16 primary schools in December 2009 found that the majority of children – 64.2% – did not wear a helmet while travelling to and from school. Despite the fact that adults rapidly adopted safety behaviours and became regular helmet wearers, enforcement challenges and the spread of false information had detrimental impacts on child helmet compliance.



BOX 18:

MYTHS ABOUT CHILD HELMET USE



Following a concerted, nationwide effort that supported the implementation of the mandatory helmet law through educational programs and large-scale media campaigns, it seemed unbelievable that child helmet use could lag so far behind.

Despite Vietnam's rapid economic development, many households still remain on the edge of poverty and an injury can be financially devastating. The healthcare costs of a road crash injury are estimated to be equivalent to the average family's income over 11 months. This situation can also increase the risk of a family falling into poverty by 21% (Peden et al., 2008). With such high stakes, it seems counter-intuitive that a simple injury prevention measure - wearing a helmet - is not given greater priority.

Studies exploring the reasons for low child helmet use in Vietnam found that much of this can be attributed to underlying societal beliefs. Identifying and then challenging these is rarely straightforward.

Shortly after the introduction of the universal helmet law, an article that cited the 'expertise' of a doctor - who later said she was misquoted - suggested that wearing a helmet could injure a child's neck. In Vietnam, where doctors are highly revered, this myth had a major influence on parents' beliefs and practices and resonates to this day, despite a large body of evidence to the contrary, backed by global experts.

Interviews with parents whose children do not wear helmets found that 67% cited a fear of neck injury as the primary reason for their decision (Pervin et al., 2009).

"I read in a newspaper (I do not remember the name) that it was not good for children under 5 years old to wear helmets because they might affect the spine."
-Female, 37 years old, Hanoi (2009).

"I have some friends and we often argue on some controversial issues when buying helmets for our children. Firstly, children's necks and spines are still weak. If they fell, they would easily be broken. Instead of worrying that children would die of a brain injury without a helmet, we are afraid that their neck would be broken wearing one. Those things are not my field of expertise. I am so worried." -Male, 49 years old, Hanoi (2009).

Studies also found that a child's age was an important factor associated with the likelihood of he or she using a helmet. Many parents believed that the younger their child, the greater the risk they faced of neck injuries from a helmet. The number of parents who believed helmets were safe and should be worn by children increased with the child's age (Pervin et al., 2009). Younger children were also less likely to be observed wearing a helmet, with rates for those under 7 years old ranging from as low as 15-53%, compared to those aged 8-14 ranging from 38-53% (Pervin et al., 2009).

To combat these myths, a 2009 report submitted to the Vietnamese government by the World Health Organization stated, "There is no evidence to indicate that helmets increase the risk of neck injury when compared to the demonstrated life-saving benefits that helmets provide in the event of a crash."

Local doctors have said similar things. "Child helmets have no effect on the health as well as the neck vertebra [of children] because honestly, the helmet designed for children is very light. There is no study in

the world that says child helmet can be harmful," Dr. Nguyen Duc Chinh, a specialist at Viet Duc Hospital, said.

In 2009, Vietnamese government agencies convened with the World Health Organization, UNICEF, and other international stakeholders during an expert consultation workshop to dispel these rumors once and for all. This was backed by efforts to educate the public on the facts about child helmet use through newspaper articles authored by international experts.

Other beliefs also played a role. Many parents thought the risk of injury was lower when travelling shorter distances or in congested traffic. Many felt confident that they could keep their children safe in the event of a crash (Center for Women's Studies, 2011).

Parents weren't the sole decision makers, though. The attitudes of young people affected helmet use rates (Center for Women's Studies, 2011).

"(My) friends said that wearing helmets destroyed their hairstyles. They had just put gel on their hair to create their own hair style, but helmets damage them totally." -Secondary school student, Danang.

"When I go to school, my mom often braids my hair very beautifully. However, wearing helmet destroys my hair style." -primary school student, Ho Chi Minh City (2011).

"Wearing helmets destroys hair styles, particularly when I go out or go to a party." -Female high school student, Danang

There were also challenges from a more practical point of view. As the motorcycle was often the family vehicle, some parents complained that when each passenger wore a helmet it was difficult to fit everyone on the vehicle (Center for Women's Studies, 2011). Parents also cite carrying multiple helmets on one motorcycle to be cumbersome and inconvenient, limiting children's access to safety equipment.

Closing the loophole

Faced with the reality that, despite the successes of the 2007 mandatory helmet law, increasing child helmet use would require further efforts, concerned stakeholders came together to address these issues. This was implemented through a second phase of advocacy and campaign efforts focusing on the country's youngest road users. The Vietnam Helmet Wearing Coalition, which was formed to support the initial *"Wear a helmet. There are no excuses."* campaign that was credited with advancing the universal helmet law, came back together to advocate for child helmet use through the media and with policymakers (Pervin et al., 2009).

This new public awareness campaign featured parents who did not put helmets on the children and were then in crashes. Michelle Yeoh, a world-renowned actress and road safety advocate, came to Vietnam to support the initiative in 2008. During her visit, Yeoh said, "Where is the logic in requiring adults to wear crash helmets for their own safety but not the children? Adults must protect their children the way they protect themselves. We need to protect our future, we need to protect our children."

A few months later, Nobel Peace Prize-winner Archbishop Desmond Tutu issued a letter to the country's Prime Minister explicitly urging him to address the issue of child helmet wearing. He wrote: **"I understand that your personal commitment and leadership had great influence on the implementation of Resolution 32. I believe, therefore, that if you were to order, as a priority, that the traffic police vigorously enforce child helmet wearing by fining the adult driver as the law allows then this, combined with public announcements on the issue, would result in a rapid and dramatic increase in helmet wearing by children and a consequent reduction in their death and head injury."**

This encouragement from international advocates motivated the government to close the legislative loophole. With the support of the WHO, the Vietnamese government and the NTSC established a working group to develop the necessary legislative changes to shift the responsibility to adults for ensuring children wore helmets (Pervin et al., 2009).

In April 2010, just over two years after the introduction of the universal helmet law, the Prime Minister signed an amendment to Resolution 32 (Decree 34/2010/ND-CP) that mandated proper helmet use for all motorcycle riders ages six and older. Adults carrying

children without a helmet that was properly buckled were also liable for paying a fine ranging between 100,000 - 200,000 VND, equivalent to \$5.17-\$10.35 USD. (Bao et al., 2017; WHO & Hanoi School of Public Health, 2013)

Unlike the universal helmet law, however, the impact of the amendment was not an overnight success and progress was slow. A comparison of child helmet wearing rates in December 2010 across the same 16 primary schools assessed a year earlier, found that helmet use rates amongst children had even decreased (from 35.8% in 2009 to 31.1% in 2010), with an average of 68.9% of kids travelling to and from school without a helmet, compared to 64.2% in 2009 (P. Nguyen et al., 2012). The lowest rates were in Hanoi (16.9%) with Can Tho Province recording the highest (43.7%) (P. Nguyen et al., 2012).

One of the key reasons observed for the low success of the amendment appeared to be a perception among parents that their likelihood of getting fined was relatively low. Surveys completed in January 2011 in three major cities, Hanoi, Danang and Ho Chi Minh City, found that even though 65.9% of children were not wearing helmets, only 4.9% of parents had been fined (Center for Women's Studies, 2011).

"I do not have my child wear a helmet when taking him to school because the school is very near and my child is very small. Also there are no policemen in our area, so I do not have to worry about being fined. I think there is no danger in nearby streets." -Female, 29 years old, Ho Chi Minh City

"I am a careful driver. Sometimes for some reasons I don't have a helmet for my child, so I drive slowly and observe carefully. The most important thing is not being caught by policemen." -Male, 58 years old, Hanoi

The fact that parents believed there was a low risk of being fined, combined with other factors that influenced their decisions about whether their child wore a helmet or not, continued to limit the impact of the law's revision.

Surveys also found that despite high awareness among both children (98.4%) and parents (97%) about the benefits of wearing a helmet for injury protection, one in every three parents were still concerned that helmet use could have negative effects on their children (Center for Women's Studies, 2011). Parents were also

PROTECTING THOSE WHO NEED IT MOST

concerned about helmet quality, with 38% saying they faced difficulties knowing what the right choice was for their child. Many worried that fake helmets that do not comply with appropriate quality standards could potentially cause injuries. Even though many helmets available on the market bear the quality sticker, many were skeptical about whether these were legitimate or counterfeit.

Traffic police reported a number of difficulties in enforcing child helmet use, such as confusion among parents about what age the law applied to, needing to carry the relevant documentation to prove to people that they had violated the amended law, and difficulty in determining the age of child passengers. As a result, some officers felt hesitant to fine people (Center for Women's Studies, 2011). "We hardly

fine any case because people are very poor, they earn just 5-6,000 VND a day (equivalent of \$0.26 to \$0.31 USD) for their living," a traffic policeman from Danang said. Another officer, who was based in Ho Chi Minh City, said, "For young children, people often argue which makes us tired and difficult to deal with."

While the 2007 implementation of the law boasted nationwide support and a robust enforcement campaign backing it, the implementation of the 2010 amendment suffered from low national-level prioritisation. As a result, its impact was limited. Exceptions to this situation included targeted programs combining school-based education and awareness-raising efforts, which engaged both school leaders and parents.



BOX 19:

CASE STUDY: EDUCATING VIETNAM'S YOUNGEST ROAD USERS



Local champions, ranging from government officials to teachers, have been instrumental in spreading helmet safety awareness and knowledge among Vietnam's youngest citizens. On 31 December 2014, in an effort to address the issue of low child helmet use rates, the government launched a coordinated, multi-sectoral intervention with the aim of increasing child helmet use, dubbed the National Child Helmet Action Plan (NCHAP). Local schools and their dedicated educators have played integral roles in this country-wide campaign.

Prior to this, in 2013, Tran Nhan Ton Primary School began participating in AIP Foundation's *Helmets for Kids* program. The program, which the nonprofit has been coordinating for years, has played a critical part in NCHAP and is an exemplary example of what can be achieved. Helmet use among students at this school increased significantly from 17.7% pre-program implementation to 97.7% two years later in May 2015. This sustained commitment to road safety can be largely attributed to a dedicated local stakeholder – the school's principal, Mrs. Van Vo.

Mrs. Van created a strong communication network among her school's teachers, students, and parents to reinforce helmet safety messages and keep track of helmet use among students. She has crafted and diligently enforced school policies that require students to wear helmets as part of their uniforms.

When helmet use among her students began to slip in 2015, Mrs. Van took action to change this. For an entire week, she stationed herself at the school gate reminding her students and their parents to wear their helmets saying, "Our school is located near the national road with heavy traffic. It is very dangerous for your child to not wear a helmet. Please don't forget to protect my student and your child."

Despite Mrs. Van's successes at her school, helmet wearing rates among children nationwide remain disturbingly low. Helmets did not become mandatory for children until 2010 - three years after the universal helmet law went into effect - and even then it only applies to children 6 years and older.

"This law was a wake-up call to all parents about the importance of children wearing helmets," Mrs. Van said. "But in the long run, it's about building a new behaviour among all people and helping them achieve greater self-awareness about helmet use."

Mrs. Van also emphasised the importance of wearing quality helmets. When she found that some children were wearing substandard helmets, Mrs. Van and the vice-principal discussed this issue with the students' parents directly, citing the risk they were putting their children in of suffering traumatic brain injuries. Only one week after that meeting, the situation improved. Mrs. Van has also shared her experiences with other schools in Ho Chi Minh City in the hopes of promoting child helmet use city-wide. "If we just think but do not take action, we won't get the results". Her message has resonated with schools which have applied what they have learned from Mrs. Van.



In 2014, Mrs. Van played a critical role in developing a national helmet use curriculum, a crucial educational component of NCHAP. She and a group of other educators reviewed and provided valuable feedback on the "School Guidelines" curriculum, developed by AIP Foundation in coordination with the Ministry of Education and Training (MoET). The MoET approved this evidence-based curriculum for nationwide use in October 2015, which has been an important step in bringing helmet use education to students across the country.

Though Mrs. Van has built a strong safety culture at her school, she understands the limitations that many parents face when it comes to providing their children with quality helmets. She cites issues such as financial constraints and low awareness about safety measures as primary reasons for this low helmet wearing rates. But, she is determined to combat this reasoning and ensure that all road users are safe.

"School, family, and society need to cooperate with each other to educate students to protect themselves from risk factors for road crash injuries," Mrs. Van said. Two years after NCHAP launched, the helmet use rate at her school is still one of the highest in the nation at 93%.

Nationwide action to address child helmet use

Just as the 2007 enforcement of the law had been backed by a nationwide campaign, road safety stakeholders in Vietnam recognised that the 2010 amendment needed similar support in order to be effective. From 2011 to 2014, AIP Foundation teamed up with Atlantic Philanthropies, FIA Foundation, GRSP, and other partners to implement capacity building, education, and awareness activities nationwide. These efforts targeted Vietnam's three major cities. This multi-sector engagement aimed to make a point – that an evidence-based campaign combined with stakeholders' dedication and well-coordinated actions would lead to increases in child helmet compliance.

The integrated approach for this “*Children Also Need A Helmet*” campaign was crafted based on a needs assessment, which included a comprehensive stakeholder analysis, as well as knowledge, attitude, and behaviour surveys of the population. A steering committee was arranged, which was comprised of the NTSC, Ministry of Education and Training, Traffic Police, and AIP Foundation. The committee was guided by an advisory panel, which included representatives from the WHO, UNICEF, GRSP, hospitals, and other stakeholders. Each partner had a clearly defined role and responsibility. AIP Foundation coordinated among the various groups.

The pre-campaign research and preparation period lasted more than 1.5 years. Before this, the “*Wear a Helmet. There are no excuses.*” campaign concept had been created by AIP Foundation. The creative visuals were then used to raise funds for the campaign's production, and advocate to the government. This time the approach was collaborative from the start. Early government buy-in was crucial to securing ownership and overcoming the lack of prioritisation of child helmet use on the national agenda.

Surveys and focus group discussions informed the concept of the new “*Children also need a helmet*” campaign. Before turning these ideas into action, the concept, campaign messages, and storyboards were tested with a sample target group and then refined.

The campaign rolled out in three phases, with each phase being independently evaluated so these lessons learned could inform the following stage of the campaign. To strengthen the initiative and ensure its sustainability, provincial and national government agencies participated in capacity-building workshops where they brainstormed effective ways of encouraging child helmet use in their jurisdictions.



The workshops also provided a platform for knowledge sharing and supported the media in better understanding the importance of child helmet use. Within six months of participating in the course, journalists had published 80 in-depth feature articles on the topic.

After all phases were completed, final observations confirmed an 18 percentage-point increase in child helmet use – with a jump from 18% in March 2011 to 36% in March 2014.

The positive results from these efforts were used to advocate to the government and eventually inspire the launch of the National Child Helmet Action Plan (NCHAP), on 31 December, 2014.

Led by the NTSC, NCHAP brings together multiple levels of government, provincial-level authorities, and local community leaders, schools, and hospitals. UN agencies, research bodies, corporate partners, civil society organisations, nonprofits, and helmet manufacturers have also played pivotal roles in the ongoing campaign.

AIP Foundation is one of its closest allies and plays a coordinating role. For instance, the NTSC and the nonprofit teamed up to develop and disseminate public awareness campaigns and school-based educational activities throughout the country.

Robust monitoring and evaluation efforts have accompanied the program to track its effectiveness. In order to measure helmet compliance among young students, AIP Foundation conducts unannounced, filmed helmet observations using a methodology co-developed by the U.S. Centers for Disease Control and Prevention.

Pre-implementation, child helmet wearing rates in Vietnam's three major cities – Ho Chi Minh City, Hanoi, and Danang – averaged just 36.1%. But, adult helmet wearing rates averaged 87.6%. In April 2015, the traffic police led an enforcement blitz that included warnings and then fines for un-helmeted child passengers. Directly following this enforcement period, child helmet wearing rates skyrocketed – they averaged 69.3% across the three major cities. But, this success tapered off in the months following. By December 2015, compliance rates averaged 49.8%. Though this still signified strong progress compared to pre-program rates, it was clear that enforcement is pivotal to keeping children safe.

Though the campaign is nationwide, AIP Foundation and other partner organisations have concentrated support for NCHAP in 15 provinces including the cities of Hanoi, Danang, and Ho Chi Minh City. Helmet wearing rate increases vary among the provinces depending on factors ranging from local government buy-in to economic conditions among residents. Similarly, to the three major cities, helmet compliance rates increased dramatically in these target regions following the police enforcement blitz. As the government and its partners continue to work across the country, enforcement will play an imperative role in the program succeeding.

BOX 20:

CASE STUDY: DRIVING THE AGENDA TO PROTECT VIETNAM'S YOUTH



The driving force behind NCHAP is Dr. Khuat Viet Hung, Executive Vice Chairman of the NTSC. As a committed leader to action, he called upon ministries from different sectors including public security, education, health, media, and its provincial counterparts, to implement NCHAP together. NCHAP is comprised of public awareness campaigns, school-based measures, enhanced police patrolling and enforcement activities, as well as capacity building efforts. In response to the third UN Global Road Safety

Week themed “Children and road safety” in 2015, the NTSC launched NCHAP.

“It is a peculiar and sad phenomenon that, over the past few years, we have seen very high compliance with the mandatory helmet regulation among adults while helmet use among children remains unacceptably low,” Dr. Hung said. “Children are the future of the country and deserve the best care and attention.”

BOX 21:

CASE STUDY: COMMITTED TO THE CAUSE OF CHILD HELMET USE

The first time Stefan Phang visited Vietnam more than 15 years ago for work, he was astounded to see almost all motorcycle passengers and drivers not wearing helmets – especially young schoolchildren. These students were shuttled to and from school by their parents using two-wheelers, which are often the family vehicle. Phang soon discovered that the cost of a helmet was simply too high for an average family to afford. There was also no law mandating helmet use, which gave people little incentive to invest in the pricey safety equipment.

So, Phang took action. At the time, he was working for Johnson & Johnson, a U.S.-based multinational company. He started by seeking funds from his company to support implementing the *Helmets for Kids* program at several schools in Hanoi. That was just the start. The funding increased year by year, so he was able to expand the work to more schools and save more students throughout the country. Over seven years, 79 children from program schools were involved in road crashes. Fortunately, they were all wearing their donated helmets at the time, which protected them from potential head impacts.

In 2006, he began working for a new company. Though he was unable to secure financial support from his new employer, he raised funds on his own to sponsor a school in Hai Duong Province. He successfully funded a *Helmets for Kids* initiative at this same school until 2014.

“Every child saved is a child saved, so that pushed me to raise funds for *Helmets for Kids* in Hai Duong each year,” Phang said.

But, Phang strongly believes that the issue of road safety is multifaceted. Funding alone is not enough to solve the problem.

“For private corporations to fund the program is one thing, but it needs to have a comprehensive solution – enforcement of the helmet law by the state, educating the children how to wear their helmets properly, as



Students and teachers interact during a *Helmets for Kids* extracurricular activity.

well as strong family support to ensure that each time a child gets on a motorcycle as a pillion rider, the child must put on a helmet,” he said.

Though he has observed that the number of people wearing helmets has increased tremendously over the years, along with other improvements such as improved road infrastructure, public education, and police enforcement continues to lack on a range of road safety issues. He still sees motorcyclists texting on their mobile phones while driving, drivers not stopping for pedestrians at red lights or zebra crossings, and driving drunk.

As a health and safety professional, Phang believes that the Vietnamese government should pass a law requiring all companies operating in Vietnam to have a road safety policy for their employees. Those who travel on the roads for work are at risk of being in road crashes on a daily basis. He believes that if the government makes it mandatory for all corporations to implement such programs for their employees, then public education on road safety will surge. Phang thinks that this could work in tandem with requiring all schools to teach a road safety curriculum, ensuring that the younger generations also receive these life-saving lessons.



A QUESTION OF QUALITY

Helmet quality



Although Vietnam can claim significant success in dramatically increasing helmet use, one issue that the country continues to grapple with is the prevalence of poor-quality helmets (Hung 2008). The country was an early adopter of helmet standards in 1993 but at the time helmet use was not at all commonplace, making the standard almost meaningless. In 2001, revised standards that took into account Vietnam's climate and road conditions were introduced, with the aim of increasing the accessibility of helmets and encouraging helmet use.

As the new standards were devised, it also became apparent to many that quality helmets offering adequate protection had to be readily available to the public – and, at an affordable price (Hung 2008).

Evidence showed that other countries, such as China and the United States, also grappled with the issue of widespread use of substandard helmets (Hung et al., 2008). In Vietnam in the early 2000s, substandard options were readily available on the market – and, at cheap prices.

Notably, the protective aspects of a quality helmet were not appreciated by many motorcyclists. As is evident in the widely variable helmet wearing rates between rural and urban roads, many motorcyclists wore helmets predominantly to avoid a fine (Abbas et al., 2012; WHO & Hanoi School of Public Health, 2013). For most riders, consideration of price outweighed protection when purchasing a helmet. In Vietnam, the majority of riders surveyed said they

chose to purchase a helmet that was cheaper than the average market price (\$9.50 USD) of a standard, also known as a quality, helmet (Hung et al., 2008). For many families, this cost is substantial. It was equivalent to more than 13 hours of factory work in Vietnam and 28% of an average monthly household income in the Red River Delta region (Hendrie et al., 2004; Hung et al., 2008b). Many other parts of the world face the same issue. A study across nine different low- and middle-income countries found that those who spent under \$10 USD were more likely to have purchased a substandard helmet (Road Traffic Injuries Research Network Multicenter Study Collaborators, 2013).

Unfortunately, those who buy substandard helmets may in fact be putting themselves at greater risk. There is some evidence to suggest that a substandard helmet can exacerbate injuries during a crash (Peek-Asa 1999, cited by Liu et al., 2008). In Vietnam, this is a particularly stark reality. A 2008 study found that as few as 4.4% of helmets assessed met all the requirements of the helmet standard, including manufacturers and quality standard labelling (Hung, 2008).

"I myself witnessed traffic crashes three times. Victims fell off of the motorcycles. Their helmets were broken and stabbed into their heads," a 48-year-old female from Ho Chi Minh City said. "As such, people should rather not wear helmets than wear unqualified ones." Hospital staff observe similar issues. A doctor at Viet Duc Hospital in Hanoi said, "Working in the emergency department, we saw some cases where victims wore unqualified helmets of which the shields, were broken into sharp pieces and stabbed into the victims' eyes, face, and skin."

One of the key elements of a helmet's protection is the impact absorption, which can be inadequate or even entirely lacking in substandard helmets. Road-side, visual-based assessments in Vietnam found that although many helmets appeared to include the appropriate elements of a standard helmet (TCVN 5756-2001), including a hard cover outer shell, an energy absorbing layer, a comfort liner, and a chin strap, only 45.1% of them possessed the quality sticker (Hung et al., 2008). One of the reasons for the high prevalence of substandard helmets at the time of the study may have been due to consumer resistance to spend money on a quality helmet when helmet use was not mandated universally.

Similarly, an assessment of helmets from more than 100 retailers across nine low- and middle-income countries found that only 46% of helmets assessed



had appropriate certification labelling (Road Traffic Injuries Research Network Multicenter Study Collaborators, 2013).

Just a few years after the universal mandate in Vietnam – and where helmet use had increased significantly nationwide – there were little signs of improvement regarding helmet quality. In 2008, the Vietnam Consumer Safety Association randomly conducted blind testings of 80 helmets that had been labelled as meeting current standards at a certified helmet-testing laboratory. Of these, less than half – 46.3% – met all the relevant requirements. This study highlighted issues with counterfeit labelling as well as how to accurately ensure that manufacturers were maintaining the standards they had been certified as meeting (WHO & Hanoi School of Public Health, 2013).

In 2011, a helmet quality testing study was conducted in three provinces – Bac Giang, Ha Nam and Ninh Binh. Researchers found that of the 582 helmets tested, only 18.9% met the government-established standards, with the majority failing on a critical portion – impact testing (WHO & Hanoi School of Public Health, 2013).

Head injury rates in Vietnam have been similar to those in other countries in the region where helmet laws had been implemented. But, in the United States, where the issue of substandard helmets is much less prevalent, 33% of motorcyclists die from head injuries, compared to 78% in Vietnam (Ngo et al., 2012). Not only are these issues of helmet quality concerning for road safety stakeholders, they also pose huge concerns to consumers. Some evidence shows that wearing a poor quality helmet could even do more harm than good.

BOX 22:

CASE STUDY: A YOUNG AMBASSADOR



When Thao was 10 years old, her brother was driving her to school on his motorcycle when a drunk driver crashed into them. The impact caused them to fly into a barbed-wire fence. Thao was knocked unconscious and was rushed to the hospital. Within just two weeks of the crash occurring, Thao's parents had to quit their jobs permanently to take care of their child. The family's income plummeted. They had to borrow nearly \$700 USD for the hospital bills - that's equivalent to more than half of Vietnam's annual GDP per capita in 2010. Though Thao's health insurance

covered a portion of her healthcare costs, her family fell into severe debt because of the incident.

Fortunately, Thao was wearing a helmet during the crash, which protected her from suffering more severe injuries. According to her doctor, if she were not wearing her helmet she may have died. The helmet, which she received through a school-based helmet safety education program, was a quality helmet that met the Vietnamese government's standards. When her head hit the road, the foam cushion in the helmet

absorbed the impact and protected her brain. Its hard shell skidded on the pavement, preventing her neck from jostling around. Thao's helmet did more than shield her head – it protected her future.

"If I did not wear the helmet on that day, maybe my life would have turned upside down," Thao said. "I'm thankful that I still have a chance to sit here right now, next to my mother, and share my most haunting memory that changed my life."

Thao notes that many people in Vietnam wear substandard helmets because they are more fashionable, cheaper, or lighter than quality ones on the market. In the event of a crash, these low-quality helmets can even cause more injuries than would be incurred by not wearing a helmet at all. If there is no foam cushion to absorb the impact and a hard shell breaks, this can pierce the wearer's skull. "It's worth spending money on quality helmets," Thao said.

After recovering, Thao became an ambassador for the helmet education program that had provided her with the helmet that protected her during her near-fatal motorcycle crash. She shared her story with students and parents at primary schools throughout Ho Chi Minh City to increase their awareness of the importance of always wearing a helmet. During her talks, she emphasised the risks of wearing a substandard helmet and how the quality of hers saved her life.

At schools where she has shared her experience and inspirational message, there have been dramatic increases in helmet use rates. Her story has also touched her friends, relatives and neighbours, and encouraged them to ensure they and their families wear helmets to protect themselves.

When discussing helmet use in her community, Thao finds that many adults only wear helmets to avoid being fined by the police. People are not concerned with the quality of their helmets or level of protection they offer. She has also observed how this affects child



helmet compliance, as police enforcement of child helmet wearing tends to be much lower than that of adults. One study found that 76% of respondents reported that they had not seen, heard of, or themselves been fined for children not wearing helmet (Bao et al., 2017). This reduces parents' incentives to provide their children with quality helmets.

"I think parents do not really know how dangerous it is for their child to not wear a helmet," Thao said. "They're also not able to recognise the difference of quality helmets and substandard helmets".

Thao recently finished her first year at Nguyen Dinh Chieu High School and during summer holiday, she usually works part time to support her family. She has fully recovered from her crash and is fortunate to have no residual effects from the incident. Thao is an excellent student in her class and is dedicated to pursuing her dream of passing on knowledge to younger generations.

"I would like to become a primary school teacher in the future, not only to transfer knowledge to students, but also to teach them valuable life skills so they can protect themselves from danger – especially to stay safe on the roads," Thao said.

The challenges of regulating and enforcing helmet standards

The few studies conducted in recent years reveal that many motorcyclists in Vietnam are not using helmets that comply with the relevant standards. Substandard helmets are also commonly available for sale in local shops and markets. Many factors can be cited as causing this, though a lack of nationwide data confirming the scale of the problem is an issue. In particular, there is little understanding of how poor quality helmets are related to motorcycle-related head injuries and deaths.

Since the Vietnamese Government first developed helmet standards for adults and children in 2001, the Directorate for Standards, Metrology, and Quality (STAMEQ), and Divisions of Standards and Quality (DSQ) have been responsible for monitoring the compliance of both helmets produced in Vietnam and imported ones.



Vietnam is one of the few countries that have implemented enforcement measures for the sale and importation of substandard helmets. Many other low-and middle-income countries that have helmet standards lack either the appropriate legislation banning the sale or import of low quality helmets. Or, they have no means to test if helmets meet the country's standards (Road Traffic Injuries Research

Network Multicenter Study Collaborators, 2013). Vietnam's neighbour to the west, Cambodia, is one such example. Helmet standards have been implemented since 2010, but never officially applied or enforced, compounded by the lack of a helmet-testing laboratory in the country which makes regulating the market practically impossible.

Despite the fact that Vietnam has the proper systems in place, enforcement of helmet standards is significantly lacking. With more than 47 million registered motorcycles currently on its roads (NTSC), and likely millions more riders, regulating helmet standards is no small task. The issue, though, is not just about regulating the market – it's also about ensuring that riders understand they must only use helmets that meet the relevant standards.

It wasn't until 2014 that fines could be issued to riders wearing substandard helmets. Before then, other than educational and awareness-raising campaigns centred on ensuring riders understood the importance of wearing a quality helmet, there were no effective means to encourage consumers to choose a quality helmet that met appropriate standards.

Despite this major hurdle, there is evidence that these types of campaigns have had positive impacts. The prevalence of substandard helmets has been declining in two provinces where the GRSP, supported by Bloomberg Philanthropies, implemented social marketing campaigns focusing on the dangers of wearing low-quality helmets (Bao et al., 2017).

However, traffic police tasked with enforcing the helmet standard also face many challenges. As is evident by quality assessment studies, many helmets that appear to have the required elements, such as quality certified stamps, do not actually comply with the standards. Thus, a visual assessment of helmet quality alone is likely to have limited impacts.

Greig Craft of AIP Foundation argues that fake helmets are as unacceptable as fake medicines. For the latter, the government has zero tolerance. The same strictness is needed for fake helmets.

BOX 23:

CASE STUDY: THE CHALLENGES OF ENSURING QUALITY

Ensuring the quality of helmets on Vietnam's market is a multi-agency effort that unites the country's top experts in science, policy, and road safety. The Department of Standards, Metrology, and Quality, known as STAMEQ, organises these initiatives. The organisation's responsibilities are two-fold - to review both domestically produced helmets and imported ones. All helmets sold on the country's market must meet the Vietnamese standard, known as QCVN2:2008.

Helmets produced in Vietnam are reviewed extensively - STAMEQ evaluates sample products and the production process before granting the manufacturer conformity certificates and CR stamps. Post-certification monitoring is also conducted in order to ensure consistency in the products. Imported products face similarly rigorous evaluations, including shipment inspections and helmet sample testing.

Mr. Tran Van Hoc, the former director of STAMEQ, notes the critical role Vietnam's testing centres play in managing helmet quality. There are multiple testing centres nationwide that have the proper equipment to conduct such evaluations. He cites that the third-party evaluations conducted at the testing centres are one of the most important - if not the most - parts of the process.

"This is an independent third party certification activity that is not done by a first party [manufacturer] and a second party [buyer], to ensure objectivity and professional requirements in management," Mr. Hoc said.

Despite the rigorous efforts that STAMEQ and related agencies spearhead, counterfeit helmets are still strewn across the country's storefronts. Mr. Hoc recognises the efforts made by relevant parties to combat this issue, yet remains critical of how agencies



- including his own - have managed implementing regulations.

"In my opinion, the authorities have made great efforts to handle this issue in practice. However, it is not enough to prevent substandard helmets being sold because the progress of testing and monitoring before and after conformity assessments is not adequately effective," Mr. Hoc said. The penalties are too weak and enforcement is not stringent enough, and the coordination between central and local authorities is not effective.

Moving forward, Mr. Hoc hopes that the public awareness about helmet standards will improve. By combining increased education with enforcement, he believes there is hope for increasing quality helmet use in the country.

"It is important to effectively use our resources to more frequently educate, guide, and motivate people to wear quality helmets," Mr. Hoc said. "In particular, it is necessary to implement stronger penalties for those who deliberately violate [the law] so others can take that as a practical lesson."

A way forward



Moving forward, Vietnam faces a complex array of challenges in improving the quality of helmets. Standards agencies are currently working with limited resources, which limits their capacities to adequately regulate the marketplace. Initiatives focus on ensuring that major brands comply with the regulations, though many of the lesser known helmet producers and vendors are able to avoid scrutiny. The responsibility for regulating the helmet market also crosses multiple ministries, adding to the complexities of managing and enforcing regulations. Addressing substandard helmet quality will require a multi-faceted approach that involves national and municipal government agencies and private manufacturers.

A key issue regulators confront is that helmets are distributed to the market without the required quality-certified stamps. In some cases, vendors claim they are selling these helmets for bicycle – not motorcycle – use in order to avoid fines. Helmets with quality certified stamps, which should be an assurance to consumers that they are choosing a quality product, have also been found to fail helmet tests. This indicates that there are either counterfeit labels in circulation or flaws in the manufacturer’s quality control processes.

Overcoming these challenges will not be simple, but researchers and industry experts propose some possible solutions, including (Hung 2008; Road Traffic Injuries Research Network Multicenter Study Collaborators, 2013; Bao et al., 2017):

- Randomly auditing product quality among helmet manufacturers and vendors, and then increasing fines when helmets fail to meet the standards.
- Introducing a “Bicycle use only” or “Not for motorcycle use” label that must be used on any helmets that do not meet the motorcycle helmet quality standard, and then empowering relevant agencies to enhance enforcement among vendors and riders using the labels as a tool to do so.
- Collaborating with helmet quality experts and trauma hospitals to conduct further research into understanding the impacts of poor quality helmets on wearers’ health.
- Advocating for appropriate pricing of helmets to ensure that standard helmets are affordable.
- Implementing social marketing campaigns to educate the public about the risks of poor quality helmets, as well as how to identify a certified, quality helmet, and reinforcing these efforts with strong enforcement campaigns targeting importers, manufacturers, vendors, and motorcyclists.
- Revising currently existing helmet quality regulations and policies to ensure they are accurate, up-to-date, and can be implemented effectively.
- Developing a collaborative framework that clearly outlines government agencies’ roles and responsibilities to facilitate implementation and enforcement of helmet quality regulations.



SUSTAINING THE SUCCESS

In 2004, global attention began to turn toward the issue of road safety. The UN's General Assembly resolution 58/289 on "Improving global road safety" and the publication of the first *World Report on Road Traffic Injury Prevention* marked the start of a concerted campaign to include road traffic injuries in the international development agenda. The World Report, co-authored by the World Health Organization (WHO) and the World Bank, was a significant contribution to the debate, promoting 'Safe System' solutions. These highlighted lack of motorcycle helmet use as a key risk factor to global road safety, particularly in low- and middle-income countries (WHO, 2004).

Though road crashes affect every country, the focus of discussion was the crisis in low- and middle-income countries. This led to the establishment of the United Nations Road Safety Collaboration (UNRSC) in 2004, which was chaired by the WHO, and was tasked with facilitating international cooperation and strengthening coordination among UN agencies and other international partners. In 2005, the UN General Assembly Resolution on Improving Global Road Safety encouraged member states to address non-helmet use as one of the key road safety risk factors.



Lord Robertson and Michelle Yeoh present a Vietnamese helmet to UN Secretary General Ban Ki Moon, 2008.

Though Vietnam had not yet implemented its universal helmet law in 2004, government, nonprofit, and civil society players had taken steps toward creating a safe traffic culture. Particularly, they focused much attention on increasing helmet use. International reports cited the actions in Vietnam, such as creating climate-appropriate helmets and manufacturing in country, as case studies others could emulate. As both Vietnam and the global community advocated for road safety in the coming years, the Southeast Asian country was often heralded as an example of the results that could come from multi-sector collaboration and innovation.

BOX 24

STEPPING STONES TO SUCCESS

In 2004, the first *World Report on Road Traffic Injury Prevention* was published, highlighting the need for global action to address the escalating crisis of road crashes as a global health issue.

Key measures were recommended to improve road safety: establishing a lead agency for road safety, assessing the problems, policies and institutions to address these, preparing a national road safety strategy and plan of action, allocating financial and human

resources to implement targeted actions, and, promoting local and international cooperation to improve road safety (WHO, 2004).

As Vietnam progressed towards the successful implementation of the universal helmet in 2007, many of these best practice steps had already been taken, or were in the planning phases. As a result, Vietnam has often served as a best practice case study for other countries looking to follow their lead.

FIGURE 19 – VIETNAM'S STEPPING STONES TO IMPROVING ROAD SAFETY

ESTABLISH A LEAD AGENCY FOR ROAD SAFETY:

- The National Traffic Safety Committee (NTSC) is established in 1997.
- In 2011, the Deputy Prime Minister becomes the chair of the NTSC, ensuring the highest levels of government support.

ASSESSING THE PROBLEM:

- The Hanoi School of Public Health is established in 2001, with a focus on injury research and prevention.
- The VMIS, the first nationwide household injury survey in 2001, finds that 4,100 children die and 290,000 children are injured due to road crashes every year in Vietnam.

DEVELOP POLICIES AND CROSS-SECTORAL COLLABORATION TO ADDRESS THE ISSUES:

- Climate appropriate adult and child helmet standards are adopted in 2001 and a 'helmet clause' is included in the road code.
- A 'National Policy on Accident and Injury Prevention and Control 2002-2010' is developed as a collaboration between relevant ministries including the Ministry of Health and Ministry of Transportation - it includes a commitment to reduce road crash deaths from 14 to 9 per 10,000 vehicles by 2010.

IMPLEMENT A ROAD SAFETY STRATEGY AND ACTION PLANS:

- In late 2006, the government develops a National Helmet Action plan following a workshop in collaboration with international partners.
- The first National Road Safety Strategy is developed in 2011 with a target to reduce road traffic deaths annually by 5-10% by 2020.

PROMOTING LOCAL AND INTERNATIONAL COOPERATION:

- In 2006, the NTSC joins the Vietnam Helmet Wearing Coalition (VHWC), a group of multilateral agencies, nonprofits, and private sector companies, to develop and support the nationwide hard-hitting "*Wear a helmet. There are no excuses*" Campaign.
- Vietnam signs up to the UN Decade of Action for Road Safety in 2011.

Establishing an international Decade of Action for Road Safety

The UN launched its “Decade of Action for Road Safety” in 2011 with the aim of stabilising and then reducing global road deaths to around 1 million per year by 2020 (Silverman, 2015). This followed a series of seminal advocacy publications from the Make Roads Safe campaign, led by the Commission for Global Road Safety, which outlined the need for action, and also highlighted Vietnam’s experience in moving to a universal helmet law as a case study of the type of interventions needed to see real change (Commission for Global Road Safety, 2009).



The UN Decade of Action was established under the principles of a “Safe System” approach, which seeks to deliver a ‘forgiving’ road environment engineered to prevent death and serious injury. Inspired by Sweden’s ‘Vision Zero’, the Safe System recognises that humans are fragile and will always make mistakes, and transfers the balance of responsibility for preventing serious injury from individual road users to system managers and designers. The Safe System requires several layers of interlocking protection - safely designed and engineered roads, safe vehicles, speed limits appropriate to the local environment and mix of road use – combined with effective and enforced traffic laws, and educated road users (United Nations Road Safety Collaboration, 2011).



Based on this Safe System, the Decade of Action incorporates five pillars, also including road safety management systems and post-crash care. This framework identifies implementing evidence-based helmet legislation as a key initiative under **Pillar 4: Safer Road Users**. In Vietnam, the Decade of Action has spurred action at both regional and country levels to achieve the global targets set out under its framework (United Nations, 2011).





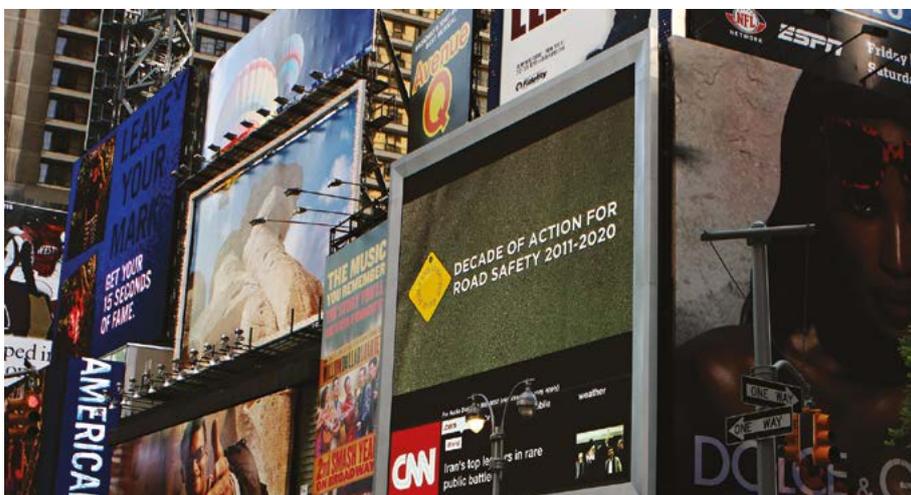
In 2015, the Regional Road Safety Strategy for ASEAN was developed and adopted the five pillars of the UN Decade of Action, but with a greater focus on issues relevant in the region. Many of the countries in the region are continuing to rapidly motorise and witness increased motorcycle usage. It makes sense to not only address key road safety risks, but to also prioritise issues that are likely to escalate in the future and can be addressed through cost-effective initiatives, such as promoting helmet use (Haworth & Klein, 2015).

Vietnam's government, led by the Ministry of Transport and with support from the WHO and others, convened representatives from national agencies and each of Vietnam's 63 provinces, as well as international organisations, to develop Vietnam's national road safety strategy in April 2011. The Prime Minister approved the national strategy, which targets a 5-10% annual reduction of road traffic deaths by 2020. Key strategic areas to achieve this ambitious target are:

Raising public awareness of road traffic safety; building institutions and policies; improving traffic infrastructure; enforcing road traffic laws; improving vehicle's, their driver's, and road user's safety; and providing first aid to road traffic victims.

The country's Decade of Action officially launched in May 2011, calling for all Vietnamese to "Take action for road safety"

Global events were also held to celebrate the beginning of the Decade of Action. In Vietnam, AIP Foundation - under its Global Helmet Vaccine Initiative - coordinated a public awareness campaign that featured celebrities promoting the message, "Together we can save millions of lives." Significant landmarks in Hanoi and Ho Chi Minh City were lit up with the Decade of Action Road Safety logo.



BOX 25:

CASE STUDY: WHEN THE MEDIA TAKES ACTION

Combatting the lethal dangers on Vietnam's roads is a concerted effort that requires buy-in from stakeholders from all sectors. For years, the country's media has played a pivotal role in awareness-raising efforts. VTV, also known as Vietnam National Television, has been a pioneer in covering a range of related issues for years.

In 2010, VTV launched the Traffic News Column as part of its "Good Morning Program," making it the first television program in the country to air a regularly scheduled segment on the state of road safety. The initiative aired PSAs every day that focused on risky road behaviours, such as drunk driving and speeding, as well as helmet wearing.

"In Vietnam, traffic crashes were considered a 'war' that caused unacceptable deaths and injuries everyday," Nguyen Thu Ha, Deputy Head of the News Department of Vietnam National Television, said. "From this epidemic, we realised this is what we needed to do to improve and show to our audience the importance of road safety."

As a spin-off of the "Traffic News Column," VTV created a special segment called, "Traffic Story on Sunday," which highlighted a tragic road crash story to show the real-life effects of such occurrences. This piece particularly resonated with wealthy viewers, who often donated anywhere from 20 to 100 million VND (equivalent to \$1,034 to \$5,172 USD) to the featured victims and their families. In addition to spearheading original programming, VTV has been an avid supporter of other awareness initiatives. The team was involved in the planning and implementation of AIP Foundation's national television campaign, "Children also need a helmet" and aired PSAs in support of the nonprofit's campaign. Child helmet wearing rates in Vietnam's three major cities significantly increased following the initiative. A post-implementation survey found that 88% of people surveyed recalled the campaign's messages (The Atlantic Philanthropies, 2014).



Michelle Yeoh meeting the media in Hanoi.

VTV has also closely collaborated with the National Traffic Safety Committee (NTSC) on awareness events and related programming. In addition to partnering with the government agency on a weekly segment, VTV and the NTSC hosted a large-scale broadcast and benefit concert in honor of road crash victims in Ho Chi Minh City that attracted more than 15,000 participants.

The network's successes have even been recognised on the international stage. In 2014, VTV's "Good Morning Program" team received the Prince Michael International Road Safety Award – one of the most prestigious honors in road safety – for its work in the field.

Years after launching its initial road safety programming, VTV is still determined to use its unique position to improve the safety of Vietnam's roads.

"The media helps bring to light the issue and solutions to fix it," Nguyen Thu Ha said. "Until the right behaviour becomes the standard of living and the action of all people, the media has not finished its job."

The Sustainable Development Goals

In 2015, following two years of consultation and many years of advocacy from global road safety stakeholders spearheaded by the FIA Foundation, a target to improve road safety was included as part of the UN's new agenda, dubbed the Sustainable Development Goals. The Millennium Development Goals, which had been established nearly 15 years prior, had not addressed the increasingly grave issue of road safety, which was becoming a global public health crisis.

Goal 3: Ensure healthy lives and promote well-being for all at all ages.



Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents.

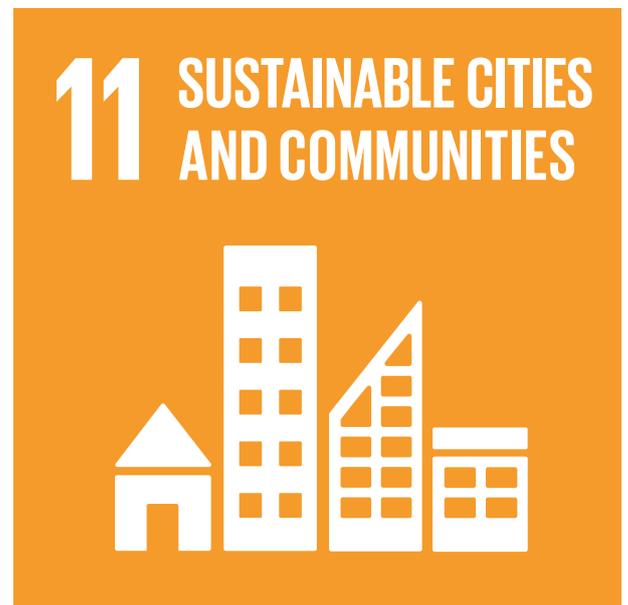
Meeting the 2020 target will require reducing fatalities to just over 600,000, compared to 1 million under the Decade of Action. While this is an admirable target, there are concerns about whether it is realistic when many low- and middle-income countries are actually seeing road deaths increase (Silverman, 2015). A key criticism of recent efforts is that there has been insufficient action, particularly in these developing countries, to address risk factors (Towards Zero Foundation, n.d.).

Despite these reservations, Vietnam is an example of the significant progress that can be championed

with a comprehensive, robustly enforced universal helmet law. The legislation is a relatively low-cost measure, which the WHO estimates costs approximately 10 cents per person per year (Silverman, 2015). Stakeholders around the world have used Vietnam's achievements as powerful ammunition for the case that road safety is a solvable problem. Quantifying the economic and human benefits are an important part of building the case for greater investment.

The other target, while more focused on accessible and sustainable transport also provides an opportunity to advocate for improved policies and legislation related to motorcycle safety, given that this is an affordable and less environmentally taxing means of transport, which is likely to continue to play an important role in urban mobility, particularly in developing countries.

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.



Target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

BOX 26:

CASE STUDY: VIETNAM'S ROLE IN ADVOCATING FOR GLOBAL ACTION ON ROAD SAFETY

Creating lasting change in Vietnam starts with the country's youngest road users – children. In 2015, millions worldwide signed the #SaveKidsLives pledge during the 3rd UN Global Road Safety Week. In Vietnam, more than 500,000 schoolchildren signed the pledge, adding their voices to the global cause.

Crash victims and their families also joined the cause. Diem, the mother of Le Xuan Han, a 7-year-old girl who was killed by a drunk motorcyclist in 2008 in Ho Chi Minh City, spoke at events. Her daughter's story had previously been shared at a pivotal point at a meeting of the United Nation's General Assembly by Lord Robertson of the Global Road Safety Commission. Her story helped to encourage the UN and world leaders to prioritise road safety as a global issue and declare the global decade for road safety. Many people cited Diem and her daughter's tragic story as a key influence in their opinions toward helmet safety.

Nguyen Minh Trang is one of the thousands of Vietnamese students who came out to support the monumental #SaveKidsLives initiative. After attending an event hosted by a coalition of nonprofits and government partners celebrating the initiative, she committed herself to the cause. She became a member of her school's "Red Flag Team," which is responsible for monitoring helmet use among students. Every day, the team checks who is wearing their helmets and reminds those not wearing them to do so.

Her school also participated in *Helmets for Kids*, AIP Foundation's road safety education and awareness program aimed at increasing helmet use among primary school students. In addition to donating free helmets to the school, the nonprofit trains teachers on how to show their students how to properly wear their new helmets.

"After receiving the free helmet, I feel safer and always wear it when riding on a motorcycle with my parents," Trang said.



But, adults also must play a role in ensuring children's safety. As part of *Helmets for Kids*, parents sign a commitment letter promising they will ensure their children always wear their helmets.

"Now, most students at my school remember to wear their helmets when on motorcycles with their parents," she said. "The signing ceremony is very important - as kids, we rely on others to teach us about road safety and help to keep us safe on the road."

Even at such a young age, Nguyen Minh Trang has devoted herself to keeping her community safe through initiatives taking place everywhere from the schoolyard to the global stage. And, there are thousands of other Vietnamese students just like her. By engaging Vietnam's youth, the country will be able to create a new generation of safe road users.

"If people can change their behaviour a little, such as by wearing their helmets properly, not carrying oversized loads, not running red lights, and driving at safe speeds, the roads will be safe," Trang said.

How increased helmet use can contribute to achieving the Global Goals

Building on a wide range of global evidence on the causes of road crash injuries and deaths, road safety stakeholders have advocated for the prioritising of mandatory helmet laws and enforcement measures in low- and middle-income countries as a cost-effective means to save lives (Commission for Global Road Safety, 2008).

In 2016, the WHO began leading discussions about setting voluntary targets and monitoring progress toward achieving the road safety-related Sustainable Development Goals. In November 2017, governments meeting at WHO agreed a set of voluntary targets, including, for motorcycle helmet use, a 2030 target to 'increase the proportion of motorcycle riders correctly using standard helmets to close to 100%.' Vietnam is well on track to achieve 100% adult helmet use, with current rates at 90%, although low child helmet-use rates are still concerning. However, increasing the use of helmets that meet quality standards will remain a key priority to ensure that those who wear helmets are adequately protected.

UNDP Goodwill Ambassador for the Global Goals, Michelle Yeoh, describes the imperative for other countries to follow Vietnam in taking decisive action to increase motorcycle helmet use, or tackle other major causes of road traffic injury: "Road traffic deaths are still rising. We are further away from achieving the SDG target than we were in 2015. Yet still we talk, and I think of the people I've met who are waiting for us to act. People like the mothers lying on floor mats all day and night in hospital corridors, while their beloved children are treated for traffic injuries in overcrowded wards; People like the exhausted trauma surgeon, trying to cope with a continuous conveyor belt of customers - delivered to his door by a broken transport system; People like the teachers arriving in school, looking out at their classroom and seeing another empty desk. Because out there in the real world people can't wait for our bureaucracy, our prevarication, our revisions of strategy papers, and our excuses. On their behalf, I'm losing patience."



BOX 27:

CASE STUDY: ROAD SAFETY BEYOND THE VIETNAMESE CONTEXT

Other low- and middle-income countries grappling with increasing road crash deaths sometimes look to Vietnam's helmet legislation for answers. The 2007 universal helmet law and further legislation provided a low-cost, accessible solution for keeping motorcyclists safe. Vietnam's neighbour, the Philippines, recently conducted a hospital survey and found that 62% of those with road crash injuries were motorcyclists – but only 4% were wearing a helmet at the time of the incident. The island nation achieved a major victory in addressing these staggering statistics by enacting a mandatory child helmet law in May 2017 (Global Alliance of NGOs for Road Safety, 2017).

As some countries progress toward improved helmet laws, others are taking leaps backward. In 2012, Michigan, a state in the United States of America, repealed its 35-year-old motorcycle helmet law (Kennedy, M. 2016). The new legislation states that if riders are over 21 years old and have had a licence for a minimum of two years, and have also purchased additional medical insurance, they can legally not wear a helmet. The human toll of this change has been devastating.

A study released three years following the repeal found that 68% of motorcyclists died at the scene of the crash, compared to just 14% prior to the law change. Hospital data also saw a significant increase in the number of crash victims not wearing helmets – with a change from 7% before 2012 to 28% after. Other studies across the United States similarly found that helmet laws have been repealed, helmet use has typically dropped from almost full compliance to less than 50% and head injuries and fatalities have increased (WHO, 2006). As some parts of the world are reintroduced to road safety crises, it's important for international advocates to use these instances as evidence of the effectiveness of mandatory helmet laws.

Tackling helmet safety is just one piece of the road safety puzzle for both Vietnam and countries around



the world. Other issues that put road users at risk must also be addressed aggressively. As the country's economy continues to grow and car ownership increases, seatbelt use will continue to be an issue of import. As Vietnam decides how to approach this new safety provision, it can look to examples such as that of the Australian state of Victoria. The state pioneered mandatory car seatbelt legislation in 1970 and the rest of the country soon followed (McDermott & Hough, 1979). By 1977, seatbelt-wearing had increased to 90%. This translated to a significant number of lives saved and injuries prevented on Australia's roads. But, just as Vietnam's helmet legislation originally left out children, so did Australia's seatbelt regulations.

Vietnam's progress parallels other efforts in the world, lags behind some, and is seen as a beacon by many for what can be achieved through dedicated road safety initiatives. As with many development issues, it requires buy-in from a roster of multi-sector players and abundant resources. In the coming years, Vietnam will need to maintain the momentum built up by its universal helmet law to champion other positive changes on its roads.

The struggle to secure funding

Road crash deaths and injuries disproportionately affect low- and middle-income countries, with approximately 90% of such deaths occurring in these countries (WHO 2015). The economic burden is also high, with an estimated cost to these developing countries of \$1,000 billion a year (iRAP, 2013). In Vietnam, the estimated annual cost of road crash fatalities and injuries is approximately \$5 billion USD per year, equivalent to 2.9% of GDP (UNESCAP, 2017).



UN Special Envoy for Road Safety Jean Todt is leading efforts to secure new funding.

Compared to other public health issues, the issue of road safety is largely overlooked by international donors, who have been slow to recognise it as a global health crisis. According to the latest national road crash statistics, 8,417 lives were lost on Vietnam's roads last year (NTSC 2016). However, due to issues in the collection of road crash data, this does not reflect the full scale of the epidemic. The WHO estimated that 22,419 lives were lost in 2013 (WHO, 2015). The number injured are in the thousands more, many of whom may have to live with ongoing impairments or disabilities for the rest of their lives. Transport injuries in Vietnam are currently ranked as the 8th leading cause of deaths per 100,000 population (Institute for Health and Metrics and Evaluation, 2016).

Comparatively, deaths due to HIV/AIDS & tuberculosis, are currently ranked 9th, with an average of 14,000 new infections per year (Institute for Health and Metrics and Evaluation, 2016; Ministry of Health Vietnam, 2014). Since 1990, there has been a significant decline in deaths when these diseases were the 4th leading cause of death in Vietnam (Ministry of Health Vietnam, 2014).

HIV/AIDS programs alone in Vietnam have received a total of \$164 million from the Global Fund since 2003, in addition to almost \$600 million from PEPFAR since 2004 (IRIN, 2013; The Global Fund, 2016).

With access to this kind of funding available to implement road safety initiatives, the possibilities to save lives would be enormous. However, in 2008, it was estimated that bilateral grant aid explicitly for road safety initiatives in middle- and low-income countries was below \$10 million USD a year, falling devastatingly short of the estimated \$300 million USD per year that would be needed to fund a global road safety plan, let alone more recent higher estimates from the United Nations Economic Commission for Europe (Commission for Global Road Safety, 2008).

Despite calls for increased commitment and funding, the United Nations Secretary-General's 2009 report on the global road safety crisis warned that there was insufficient action and funding to tackle the problem (United Nations Road Safety Collaboration, 2011).

Today, the international funding available to catalyse and support national implementation is still in the low tens of millions, far below the estimated \$770 million USD needed to implement effective measures to reach the road fatalities and injuries reduction targets set out under the Sustainable Development Goals (UN-ECE, 2017). Few funders are committed to supporting long-term, strategic road safety programs. FIA Foundation, Atlantic Philanthropies, Bloomberg Philanthropies, and the Global Road Safety Facility are a few exceptions. Recognising this, in 2016 the UN General Assembly approved the development of a proposal for a UN Road Safety Trust Fund (UN General Assembly Resolution 70/260).

CONCLUSION AND RECOMMENDATIONS



Positive human and economic results; lessons for wider world in meeting SDG targets

Vietnam's motorcycle helmet legislation is frequently cited as an example from which other countries can learn. In its scale and in its sustained achievement it remains a relatively rare success story for global road safety in developing countries.

As we near the end of the UN Decade of Action for Road Safety 2011-2020 and the early deadline for the road safety Sustainable Development Goal target 3.6, with neither close to being achieved, Vietnam's experience and long term commitment deserves closer scrutiny by other governments and by the wider international community.

With efforts underway to establish a UN Road Safety Trust Fund - estimated by the United Nations Economic Commission for Europe (UN-ECE) to require around US\$ 700 million per annum over ten years in order to catalyse global, regional and national strategic interventions capable of achieving target 3.6 by 2030 - the human and economic benefits of Vietnam's motorcycle safety action stand as a potent reminder of the social investment potential of road safety (UN-ECE, 2017).

For potential supporters of a new UN Fund, the Vietnam case study presented in this report is a prime example of what can result when international donors cooperate with a coalition of international agencies, strong local NGOs and a supportive private sector in close harmony with the objectives of a focused road safety lead agency. Many of these ingredients exist in many countries. The machinery is poised and ready: it requires catalytic finance to lubricate the engine and power strategies to life.

Above all it requires political leadership and commitment. Too often, in countries with desperate and urgent road traffic injury issues, we see legislation delayed or weakened; disjointed or unconvinced enforcement; a lack of sustained political support or vision; or policy undermined by corruption. In the case of Vietnam, despite numerous obstacles and challenges, the government has applied learnings and advanced with a focused objective sustained over more than 15 years, and its citizens and its economy are reaping the benefit in reduced road traffic trauma.

Legislation alone will not save lives

The Vietnamese government first enacted helmet wearing legislation in the mid-1990s. This progressive move had the potential to save thousands of lives and reap millions of dollars in economic benefits. However, the legislation alone - without the supporting elements necessary to promote the public to actually wear helmets - was a lost opportunity. Lacking access to affordable, climate appropriate helmets, and without public awareness or enforcement measures it would be many more years before Vietnam's streets would be filled with helmet wearers.

What unfolded from there, over more than a decade, was a series of incremental steps toward the implementation of the universal helmet law on 15 December 2007. In the lead up to this momentous date, the lessons learned over the previous years were being applied. These are the lessons that are invaluable for others to draw from.

The first *World Report on Road Traffic Injury Prevention* outlined a clear pathway to assess and address the road safety issues that are common to many developing countries (WHO, 2004). Vietnam's adoption of many

of these measures has, over time, strengthened the government's ability to plan and implement road safety improvements which are saving lives (WHO, 2004).

When implementing the universal helmet law, the Vietnamese government had the support of committed local and international stakeholders who shared a vision to put helmets on heads to save lives. Together they collaborated to implement a plan which ensured the incoming helmet regulations were well understood by the public through concerted campaigns of public awareness, education and enforcement measures.

Implementing life-saving road safety measures of this kind requires leadership from all corners of society. Ideally, government should lead by developing a strategy which brings together key players, prioritising actions that will make a difference, and allocating the financial and human resources necessary to implement them. But their efforts can and should be supported by the public and private sector who all benefit by preventing loss of life and injuries on the road; for their employees, themselves, family members, and loved ones.

The costs of action vs inaction

The positive human and economic impacts of Vietnam's concerted effort to boost helmet use were realised very quickly. Just one year following the introduction of the universal helmet law, a 24% decrease in injuries and a 12% decrease in fatalities were reported in national road crash statistics .

Building on the earlier work of the ADB using the gross output method, an important part of AIP Foundation's advocacy efforts in Vietnam has focused on quantifying the impact of the helmet legislation over the longer term. Whilst there are a number of alternative methodologies, such as the willingness to pay method, which would assess the individual and societal burdens of road crashes in more detail, the challenge in Vietnam, as in many other similar contexts, is the limitations in available data (ADB-ASEAN Regional Road Safety Program, 2003). Although it's likely that the true economic benefits are underestimated, this exercise has served as a powerful tool to garner the ongoing political support needed within Vietnam to maintain focus on the issue of helmet use, and demonstrates what the costs of inaction would likely have been.

Road crashes significantly impact Vietnam's economy, currently costing the country an estimated \$5 billion USD annually, equivalent to 2.9% of GDP (WHO 2015 cited by UNESCAP, 2017). These costs would be even greater if it weren't for the progress over the last ten years.

Since 2008, based on the overall reduction in reported road crash fatalities and injuries, Vietnam has seen a total estimated savings of \$15.9 USD billion dollars in medical costs, lost output, and pain and suffering. Of this, \$3.5 billion has been attributed to increased helmet use with an estimated 500,000 head injuries and 15,000 fatalities averted .

The business case for others looking to follow Vietnam's lead is obvious - the return on investment is sizeable. Donors contributed \$2,406,519 USD over two years to support the preparation and implementation of the universal helmet law. In the first year post implementation, an estimated \$128 million USD was saved, equivalent to a return of \$53.19 USD for every dollar spent.

BOX 28:

CASE STUDY: YOUTH STILL AT RISK

In April 2017, 17-year-old Nguyen Hoang Ngoc was riding his electrical bicycle to school when an oncoming vehicle slammed into him. He fell to the road and was knocked unconscious. Unfortunately, he was not wearing a helmet, so he experienced a severe head impact causing his skull to crack. Ngoc was rushed to Quang Tay Hospital and then moved to Hospital 105. At Hospital 105, doctors told his family to prepare to say goodbye to their son.



However, Ngoc's parents refused to give up on their child. They flagged down an ambulance to move him to Viet Duc Hospital, where doctors were able to save his life. At the time, Ngoc's family only had 600,000 VND - the equivalent of about \$30 USD - on them. Despite this, the doctors deferred all payments for the healthcare to a later date.

Since then, Ngoc's road to recovery has been long. The day after the crash, he underwent surgery, and eight days later he was able to wiggle his toes. He has had four more operations. He was unable to speak for two months and currently suffers from apnea. The perseverance of the doctors at Viet Duc Hospital has been instrumental in Ngoc's recovery. They say that it's a miracle that he is now able to walk around and

live a relatively normal life. Early on, some doctors said he would live in a vegetative state for the rest of his years.

Saving Ngoc's life has been accompanied by a steep price tag. Though he has health insurance, his family is very poor and only has an insurance policy of mediocre quality. In the most dire early days of treatment, the doctors waived Ngoc's medical fees. However, after the initial surgeries were done, his parents had to start picking up the tab. So far, this has added up to 200 million VND, which is equal to about \$10,000 USD. A medicine injection and use of a ventilator cost his family 5 million VND per day - each. Ngoc's parents have had to borrow the money and are paying interest on the loan. The medical bills will continue to escalate. In a few months, Ngoc will undergo a follow-up surgery and a slew of other treatments.

"If on that day Ngoc wore a helmet to school, perhaps he wouldn't have to suffer from such a severe injury. My family always reminded him to wear a helmet when going to school on an electric bicycle, but he's young and naïve and didn't wear his helmet," Ngoc's mother said.

Despite Ngoc's miraculous recovery, he still experiences life-altering side effects. He is currently blind in one eye and the treatment for this is too expensive for his family to afford. His memory has also been greatly affected by the crash. He struggles to remember things and has trouble studying for school. Although he's eager to return to the classroom, he missed enrollment for the current school year because he cannot keep up with his peers. Though Ngoc's surviving the crash was deemed a miracle by many, his months-long recovery has become a taxing journey that he must take one day at a time.

Ngoc's case is an example of the work that still needs to be done to raise awareness and reinforce the importance of helmet use, particularly amongst young Vietnamese, some of whom, have not formed life-long helmet wearing habits due to it not being instilled in them from a young age.

BOX 29:

THE ONGOING CHALLENGES



Pham Van Chien and his colleagues have led helmet enforcement efforts for the past decade. However, there are still a number of issues plaguing Vietnam's roads that concern him. Every day, his team penalises more than 100 drivers for not wearing helmets while on their motorcycles, most of them aged 16-27 years old. He notes that some people still do not have a full understanding of the importance of wearing a helmet. So, when they're fined by the traffic police they list many reasons justifying their violation. All too frequently, they cite reasons such as forgetting their helmet, only travelling a short distance, or not wanting to mess up their hair.

Chien notes that there are other challenges beyond what the traffic police can manage alone. Helmet quality is a paramount issue – there is an abundance of substandard helmets on the roads, which is a challenging issue for him and his team to combat.

“The responsibility of the traffic police is to enforce the traffic law, but it is not easy for us to recognise if a helmet meets the standard or not. It's really difficult to do that,” Chien said. “More work is needed to clearly outline and publish helmet quality standards for the community. The traffic police and the regulators of helmet quality need to cooperate with each other to make the standards widely known to increase compliance.”

Colonel Le also notes his concerns about some of the remaining challenges in achieving universal helmet use. Despite the strong public awareness and enforcement campaigns, helmet use still remains lower amongst some ethnic or religious groups. Le said the challenge is to find a way to raise their awareness and promote helmet use within these communities whilst still respecting their customs.

Generally, Colonel Le notes a lack of awareness and the knowledge amongst road users which continues to impact the country's road safety. He says, “Drivers should know that their life and the lives of others will be in their hands when they are in charge of a vehicle, this is a driver's moral obligation”. However, driving schools and the driving licensing tests do not necessarily focus on ensuring road users have the knowledge and skills needed to handle common problems on the road, which puts the community at risk. The licensing system is also not adequately equipped to support enforcement efforts. Although fine amounts have increased, some continue to flout the law by claiming that they lost their driving licence and getting a new one. This can lead to a situation where drivers may have multiple licences at the same time, making it challenging to manage these reckless drivers.

What remains to be done

"I'm a practical person. If we've got a problem, let's do something. I want to find one small thing." –

Michael R. Bloomberg, WHO Ambassador for non-communicable diseases (The New York Times, 2016)

Although Vietnam has made progress over the last decade, saving thousands of lives through helmet safety, the work is not yet done.

Whilst helmet wearing rates have remained high among adult motorcyclists over the last ten years, many riders wear substandard helmets without regard, or perhaps knowledge, that they lack the protection they will vitally need at the moment they need it most. Despite the helmet quality regulations that have been specifically developed for Vietnam's climate and context, an abundance of substandard helmets are available for sale on the streets. This is an issue the Vietnamese government continues to grapple with and work is currently underway to revise helmet quality standards and regulation management. For these changes to be effective however, greater public awareness is needed, backed by rigorous enforcement in both the marketplace and on the roads.

The public's resistance to putting helmets on children has been another significant frustration.

Efforts to protect young lives were initially hampered by legislative loopholes then, undermined by misinformation disseminated through the media, and marred by weak enforcement. Tragically, the impacts have been long lasting. Local and international road safety stakeholders have worked hard, alongside the government, to address the issue. Whilst some improvements have been seen, it has not gone far enough. What is needed now is a reinvigorated effort to decisively address the problem, reinforcing the message that it is unacceptable that children's lives and futures are risked on a daily basis.

In the global context, Vietnam serves as an exemplary case study of achievement amongst its low- and middle-income peers. But, the risks are high that ground could easily be lost if focus is not maintained.

The true scale of Vietnam's road safety challenges is difficult to quantify. Improvements in Vietnam's road crash data and connectivity between agencies is desperately needed, but this shouldn't be an excuse for inaction. We already know that the challenges are many. However, it's been proven that when there is strong commitment and collaboration, we have the capabilities to do something about it.



Michael Bloomberg at a *Helmets for Kids* ceremony in Hanoi.

With the global 2020 road safety targets looming, it is becoming increasingly apparent that neither the SDG target to reduce road traffic deaths by 50%, nor the lower target agreed under the UN's Decade of Action for Road Safety will be achieved. Action has failed to match the rhetoric.

This should not be viewed as a time to commiserate, but a call to action to do more. Targets should be extended to 2030 with a commitment by governments and other actors to do what is necessary to turn the tide.

Historically, global road safety efforts have been severely underfunded. In 2016, less than two percent of a total \$37.6 billion USD went to combatting Non-Communicable Diseases, even though they account for 70% of all deaths worldwide, and disproportionately affect low- and middle-income countries. Road crash injuries and fatalities fall into this category (Institute for Health and Metrics and Evaluation, 2016; WHO, 2017)

Road traffic crashes are contributing to one of the world's booming public health risks and should be recognised as such. Globally, 1.25 million lives are lost every year and 50 million more are injured.

Road trauma affects everyone. It is the leading cause of death globally among young people aged 15-29, poised to enter the prime of their lives, and often depriving whole families due to the loss of a breadwinner, parent or caregiver. Without action, a child's right to use the roads and streets safely, go to school and explore their world safely is threatened every day.

This is not something we should stand by and accept. Losses of this unacceptable magnitude should prompt outrage and demands for action and prioritisation, in line with the scale of the problem.



REFERENCES

Abbas, A. K., Hefny, A. F., & Abu-Zidan, F. M. (2012). Does wearing helmets reduce motorcycle-related death? A global evaluation. *Accident Analysis and Prevention*, 49, 249–252. <https://doi.org/10.1016/j.aap.2011.09.033>

ADB-ASEAN Regional Road Safety Program. (2003). *Accident Costing Report AC10: The Cost of Road Traffic Accidents in Viet Nam*.

Ainy, E., Soori, H., Ganjali, M., Le, H., & Baghfalaki, T. (2014). Estimating cost of road traffic injuries in Iran using willingness to pay (WTP) method. *PloS One*, 9(12), e112721. <https://doi.org/10.1371/journal.pone.0112721>

Asia Injury Prevention Foundation, & Vietnam National Economics University. (2007). *HELMET USAGE IN VIETNAM : A Pre-Public Awareness Campaign Study*. Hanoi.

Asian Development Bank. (2003). *Accident Costing Report - Vietnam*.

Bao, J., Bachani, A. M., Viet, C. P., Quang, L. N., Nguyen, N., & Hyder, A. A. (2017). Trends in motorcycle helmet use in Vietnam: results from a four-year study. *Public Health*, 144, S39–S44. <https://doi.org/10.1016/j.puhe.2017.01.010>

Boufous, S., Ali, M., Nguyen, H. T., Stevenson, M., Vu, T. C., Nguyen, D. T. Y., ... Thien, C. (2012). Child injury prevention in Vietnam : achievements and challenges, 7300(October 2016). <https://doi.org/10.1080/17457300.2011.603426>

Center for Women's Studies. (2011). Survey on Public opinions on child helmet use " Head safe . Helmet on " Project, (March), 1-54.

Commission for Global Road Safety. (2008). *Make Roads Safe: Executive Summary*.

Commission for Global Road Safety. (2009). *Make Road Safe: A Decade of Action for Road Safety*. Retrieved from <https://www.fiafoundation.org/media/46110/decade-of-action-report-2009-lr.pdf>

Enserink, M. (2014). Hats off to Vietnam's helmet law. *Science*, 345(6202), 1261–1261. <https://doi.org/10.1126/science.345.6202.1261>

FIA Foundation. (n.d.). UN Decade of Action - FIA Foundation. Retrieved October 21, 2017, from <https://www.fiafoundation.org/our-work/road-safety-fund/un-decade-of-action/>

Global Alliance of NGOs for Road Safety. (2017). *Child Helmet Law Victory in the Philippines - Global Alliance of NGOs for Road Safety*. Retrieved October 25, 2017, from http://roadsafetyngos.org/sh_events/child-helmet-law-victory-in-the-philippines/

Ha, M. (2016). Chet vi tai nan giao thong, moi co quan bao cao mot kieu. Retrieved September 1, 2017, from <http://thanhnien.vn/thoi-su/chet-vi-tai-nan-giao-thong-moi-co-quan-bao-cao-mot-kieu-667572.html>

Haworth, N., & Klein, R. (2015). Challenges in developing a new regional road safety strategy for ASEAN, (November), 46–50.

Hoang, H. T., Pham, T. L., Vo, T. T., Nguyen, P. K., Doran, C. M., & Hill, P. S. (2008). The costs of traumatic brain injury due to motorcycle accidents in Hanoi, Vietnam. *Cost Effectiveness and Resource Allocation*, 6(1), 17. <https://doi.org/10.1186/1478-7547-6-17>

Hung, D. V., Stevenson, M. R., & Ivers, R. Q. (2008). Motorcycle helmets in Vietnam: ownership, quality, purchase price, and affordability. *Traffic Injury Prevention*, 9(2), 135–143. <https://doi.org/10.1080/15389580701882607>

Hung, D. V., Stevenson, M. R., & Ivers, R. Q. (2006). Prevalence of helmet use among motorcycle riders in Vietnam. *Injury Prevention*, 12(6), 409–413. <https://doi.org/10.1136/ip.2006.012724>

Institute for Health and Metrics and Evaluation. (2016a). *Financing Global Health | IHME Viz Hub*. Retrieved October 28, 2017, from <https://vizhub.healthdata.org/fgb/>

- Institute for Health and Metrics and Evaluation. (2016b). GBD Compare | IHME Viz Hub. Retrieved October 25, 2017, from <https://vizhub.healthdata.org/gbd-compare/>
- International Transport Forum. (n.d.). Reporting on Serious Road Traffic Casualties. Retrieved from <https://www.itf-oecd.org/sites/default/files/docs/road-casualties-web.pdf>
- iRAP. (2013). A business case for safer roads. Retrieved October 24, 2017, from <http://www.irap.net/en/about-irap-2/a-business-case-for-safer-roads>
- IRIN. (2013). IRIN | Vietnam concerned over HIV donor funding cuts. Retrieved October 27, 2017, from <http://www.irinnews.org/report/98402/vietnam-concerned-over-hiv-donor-funding-cuts>
- La, Q. (2013). Thực trạng đội mũ bảo hiểm của người tham gia giao thông bằng xe máy tại 6 tỉnh tháng 6 năm 2013. Retrieved from <http://static.antoangiaothong.gov.vn/Uploaded/documents/2014/Tiểu ban Ứng phó.pdf>
- Le, L. C., & Blum, R. W. (2013). Road traffic injury among young people in Vietnam: evidence from two rounds of national adolescent health surveys, 2004-2009. *Global Health Action*, 6, 1-9. <https://doi.org/10.3402/gha.v6i0.18757>
- Le, L. C., Cuong, C. V, Linnan, M. J., Do, D. V, Le, P. N., & La, H. H. (2002). Vietnam profile on traffic-related injury: facts and figures from recent studies and their implications for road traffic injury policy. Retrieved from <https://trid.trb.org/view.aspx?id=662583>
- Linnan, M. J., Pham, C. V, Le, L. C., Le, P. N., & Le, A. V. (2003). Report to UNICEF on the Vietnam Multi-center Injury Survey.
- Liu, B. C., Ivers, R., Norton, R., Boufous, S., Blows, S., & Lo, S. K. (2008). Helmets for preventing injury in motorcycle riders. In B. C. Liu (Ed.), *Cochrane Database of Systematic Reviews*. Chichester, UK: John Wiley & Sons, Ltd. <https://doi.org/10.1002/14651858.CD004333.pub3>
- Liu, B. C., Ivers, R., Norton, R., Boufous, S., Blows, S., Lo, S. K., & SK, L. (2007). Helmets for preventing injury in motorcycle riders (review). *Cochrane Database of Systematic Reviews*, The Cochra(1), 1-34. <https://doi.org/10.1002/14651858.CD004333.pub3>. www.cochranelibrary.com
- Ministry of Health Vietnam. (2014). Optimizing Viet Nam's HIV Response : An Investment Case.
- Ngo, A. D., Rao, C., Phuong Hoa, N., Hoy, D. G., Thi Quynh Trang, K., & Hill, P. S. (2012). Road traffic related mortality in Vietnam: Evidence for policy from a national sample mortality surveillance system. *BMC Public Health*, 12(1), 561. <https://doi.org/10.1186/1471-2458-12-561>
- Nguyen, H., Ivers, R., Jan, S., Martiniuk, A., & Pham, C. (2013). Catastrophic household costs due to injury in Vietnam. *Injury*, 44(5), 684-690. <https://doi.org/10.1016/j.injury.2012.05.006>
- Nguyen, H. T., Cuong, P. V., Quang, L. N., Duc, D. H., Nguyen, V. Q., & Nguyen, V. Y. (2009). REPORT: Evaluation of the Vietnam road traffic injury prevention project (VRTIPP). Hanoi.
- Nguyen, H. T., Passmore, J., Cuong, P. V., & Nguyen, N. P. (2013). Measuring compliance with Viet Nam's mandatory motorcycle helmet legislation. *International Journal of Injury Control and Safety Promotion*, 20(2), 192-196. <https://doi.org/10.1080/17457300.2012.706617>
- Nguyen, L. H. (2009). Data leads to successful introduction of Vietnam Helmet Law. Retrieved from <https://www.itf-oecd.org/sites/default/files/docs/7-nguyen.pdf>
- Nguyen, L. H. (2009). Data leads to successful introduction of Vietnam Helmet Law. In 4th IRTAD Conference, 16-17 September (pp. 242-250). Seoul. Retrieved from <https://www.itf-oecd.org/sites/default/files/docs/7-nguyen.pdf>
- Nguyen, P., Passmore, J., & Nguyen, T. (2012). Motorcycle helmet wearing in children in Viet Nam—a comparison of pre and post law. *Injury Prevention*, 18(Suppl 1), A195.1-A195. <https://doi.org/10.1136/injuryprev-2012-040590s.18>

Nguyen, T. B. (2011). Household income in present day Vietnam. In 2nd International Conference on Humanities, Historical and Social Sciences (Vol. 17, pp. 14-19). Singapore: IACSIT Press. Retrieved from <http://www.ipedr.com/vol17/4-CHSS 2011-H00020.pdf>

Olson, Z., Staples, J. A., Mock, C., Nguyen, N. P., Bachani, A. M., Nugent, R., & Verguet, S. (2016a). Helmet regulation in Vietnam : impact on health , equity and medical impoverishment, 233-238. <https://doi.org/10.1136/injuryprev-2015-041650>

Olson, Z., Staples, J. A., Mock, C., Nguyen, N. P., Bachani, A. M., Nugent, R., & Verguet, S. (2016b). Helmet regulation in Vietnam: impact on health, equity and medical impoverishment. *Injury Prevention : Journal of the International Society for Child and Adolescent Injury Prevention*, 1-6. <https://doi.org/10.1136/injuryprev-2015-041650>

Passmore, J., Thi, N., Tu, H., Luong, M. A., & Duc, N. (2010). Impact of Mandatory Motorcycle Helmet Wearing Legislation on Head Injuries in Viet Nam : Results of a Preliminary Analysis Impact of Mandatory Motorcycle Helmet Wearing Legislation on Head Injuries in Viet Nam : Results, 9588(November 2016). <https://doi.org/10.1080/15389580903497121>

Passmore, J. W., Nguyen, L. H., Nguyen, N. P., & Olivé, J.-M. (2010). The formulation and implementation of a national helmet law: a case study from Viet Nam. *Bulletin of the World Health Organization*, 88(September 2009), 783-787. <https://doi.org/10.2471/BLT.09.071662>

Peden, M., Oyegbite, K., Ozanne-Smith, J., Hyder, A. A., Branche, C., Rahman, A. F., ... Bartolomeo, K. (2008). World report on child injury prevention.

Pervin, A., Passmore, J., Sidik, M., McKinley, T., Tu, N. T. H., & Nguyen, P. N. (2009). Viet Nam's mandatory motorcycle helmet law and its impact on children. *Bulletin of the World Health Organization*, 87(5), 369-373. <https://doi.org/10.2471/BLT.08.057109>

Ramli, R., & Oxley, J. (2016). Motorcycle helmet fixation status is more crucial than helmet type in providing protection to the head. *Injury*, 47(11), 2442-2449. <https://doi.org/10.1016/j.injury.2016.09.022>

Rice, T. M., Troszak, L., Erhardt, T., Trent, R. B., & Zhu, M. (2017). Novelty helmet use and motorcycle rider fatality. *Accident Analysis and Prevention*, 103(April), 123-128. <https://doi.org/10.1016/j.aap.2017.04.002>

Rushing, R. M., & Watts, C. (2005). The new market economy (Doi Moi) in Viet Nam and its impact on young people. Retrieved from <http://iussp2005.princeton.edu/papers/50294>

Silverman, A. (2015, May 7). What would it take to halve the number of road deaths by 2020? *The Guardian*. Retrieved from <https://www.theguardian.com/global-development-professionals-network/2015/may/07/road-fatalities-deaths-safety-sustainable-development-goals>

Slesak, G., Inthalath, S., Wilder-Smith, A., & Barennes, H. (2015). Road traffic injuries in northern Laos: trends and risk factors of an underreported public health problem. *Tropical Medicine & International Health*, 20(11), 1578-1587. <https://doi.org/10.1111/tmi.12562>

Thang, B. T. (2000). After the War: 25 Years of Economic Development in Vietnam. Retrieved from <http://www.nira.or.jp/past/publ/review/2000spring/06thang.pdf>

The Atlantic Philanthropies. (2014). Developing an integrated campaign to address child helmet use in Vietnam : a case study Content ; , (April). Retrieved from https://issuu.com/aipfoundation/docs/case_study_-_vietnam_national_helme

The Global Fund. (2016). Viet Nam - Country Overview. Retrieved October 27, 2017, from <https://www.theglobalfund.org/en/portfolio/country/?loc=VNM&k=90fb7820-b2f0-4401-bc77-067270585a9b>

The New York Times. (2016, May 20). Giving Like Michael Bloomberg: "Find One Small Thing" - The New York Times. The New York Times. Retrieved from <https://www.nytimes.com/2016/05/21/your-money/giving-like-michael-bloomberg-find-one-small-thing.html>

The Social Science Research Council. (2010). Helmet Day! Brooklyn, NY. Retrieved from https://s3.amazonaws.com/ssrc-cdn1/crmuploads/new_publication_3/%7B5DBB6A15-2E6F-DF11-9D32-001CC477EC84%7D.pdf

The World Bank. (2017). Vietnam's Economy Shows Fundamental Strength, with Stable and Positive Medium Term Outlook. Retrieved September 12, 2017, from <http://www.worldbank.org/en/news/press-release/2017/07/13/vietnam-economy-shows-fundamental-strength-with-stable-and-positive-medium-term-outlook>

- Towards Zero Foundation. (n.d.). 2020 UN target for road casualty reduction will not be achieved. Retrieved August 14, 2017, from <http://www.towardszerofoundation.org/un-target-not-achieved/>
- UN-ECE. (2017). Consultation paper for the establishment of a UN Road Safety Fund. Geneva. Retrieved from http://www.unece.org/fileadmin/DAM/road_Safety/Documents/Road_Safety_Fund_consolidated_21_September_2017.pdf
- UNESCAP. (2017). Global and regional mandates and updates on Road Safety in Asia and the Pacific. Bangkok. Retrieved from http://www.unescap.org/sites/default/files/5_Global_and_regional_mandates_and_updates_on_road_safety_progress.pdf
- UNICEF, & Ministry of Labour. (2010). A Review of Child Injury Prevention in Viet Nam. Retrieved from https://www.unicef.org/vietnam/resources_13328.html
- UNICEF, & TASC. (2004). Towards a world safe for children. Bangkok. Retrieved from https://www.unicef.org/eapro/Towards_a_world_safe_for_children.pdf
- United Nations. (2011). Global Launch - Decade of Action for Road Safety 2011-2020. Transport. Retrieved from http://www.who.int/roadsafety/publications/global_launch.pdf?ua=1
- United Nations Road Safety Collaboration. (2011). Global plan for the Decade of Action for Road Safety 2011-2020. Geneva: WHO, 25. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Global+Plan+for+the+Decade+of+Action+for+Road+Safety+2011-2020#0>
- United Nations Road Safety Collaboration. (2012). WHO | Viet Nam. Retrieved August 8, 2017, from http://www.who.int/roadsafety/decade_of_action/launch/vnm/en/
- Vietnam, S. R. of. (2012). Approval of the National Road Safety Strategy by 2020 and a vision to 2030. Hanoi. Retrieved from http://www.who.int/roadsafety/decade_of_action/plan/vietnam_plan.pdf
- Vietnam National Traffic Safety Committee. (2015). 2014 Vietnam National Traffic Safety Committee Traffic Crash Report. Hanoi, Vietnam.
- WHO. (2004). World Report on Road Traffic Injury Prevention. <https://doi.org/10.1136/ip.2004.006080>
- WHO. (2007). Viet Nam Road Safety Summary. WHO Road Safety Status.
- WHO. (2012). Viet Nam Profile. Retrieved from http://www.who.int/violence_injury_prevention/road_traffic/countrywork/vietnam_2012.pdf?ua=1
- WHO. (2015). Viet Nam Country Profile. Retrieved from http://www.who.int/violence_injury_prevention/road_safety_status/2015/country_profiles/Viet_Nam.pdf?ua=1
- WHO. (2017a). WHO | NCD mortality and morbidity. Retrieved October 27, 2017, from http://www.who.int/gho/ncd/mortality_morbidity/en/
- WHO. (2017b). WHO | Road traffic injuries. Retrieved August 24, 2017, from <http://www.who.int/mediacentre/factsheets/fs358/en/>
- WHO, & Hanoi School of Public Health. (2013). Report : Study on Motorcycle Helmet Quality in Viet Nam. Retrieved from http://www.wpro.who.int/entity/vietnam/topics/injuries/helmet_quality_vietnam.pdf?ua=1
- World Health Organization. (n.d.). Country Cooperation Strategy Viet Nam 2007-2011. Retrieved from http://apps.who.int/iris/bitstream/10665/206593/1/CCS_VietNam_2007_eng.pdf
- World Health Organization. (2013). Global status report on road safety 2013: supporting a decade of action. Geneva: World Health Organization.
- World Health Organization (WHO). (2006). Helmets: A Road Safety Manual. Retrieved from http://www.who.int/roadsafety/projects/manuals/helmet_manual/1-Why.pdf
- World Health Organization (WHO). (2015). Global Status Report on Road Safety. Geneva. Retrieved from http://www.who.int/violence_injury_prevention/road_safety_status/2015/en/

AIP FOUNDATION

AIP Foundation is a 501(c)(3) nonprofit organization dedicated to preventing road injuries and fatalities. Established in 1999, AIP Foundation is delivering programs in Vietnam, Thailand, Cambodia, China, and Myanmar. We work in partnership with local governments and communities around the world to address road safety through our 'five gears' model that incorporates targeted road safety education, communications for change, global and legislative advocacy for improved traffic laws and enforcement, access to safe equipment, and research, monitoring, and evaluation. Visit www.aip-foundation.org



FIA FOUNDATION

The FIA Foundation is an independent UK registered charity with an international reputation for innovative global road safety philanthropy; practical environmental research and interventions to improve air quality and tackle climate change; and high impact strategic advocacy in the areas of road traffic injury prevention and motor vehicle fuel efficiency. Our aim is to ensure 'Safe, Clean, Fair and Green' mobility for all, playing our part to ensure a sustainable future. Visit www.fiafoundation.org





www.fiafoundation.org



www.aip-foundation.org