



Wine in the world as we approach 2050

The 21st century market challenges

- Foresight -



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The French foreign trade advisors

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Synthesis

Due to the very nature of wine, the changes applying to wine and everything related to wine marketing must be considered over a long period. This is why a willingness to launch themselves in the middle of the 21st century became obvious to the French foreign trade advisers.

This is not to say that the developments wine is about to experience are to be found in the forecasts formulated below, but we are trying to draw broad trends, possible fields of analysis in which its future lies.

World wine consumption is in a sustained upward trend (if, at any rate, the healthy image of wine **is not affected** by the scientific work established on at least 3 axes: alcohol, pesticides and heavy metals...). Indeed, the decline in wine consumption in traditional countries is more than offset by its increase in non-traditional countries, except in case of major economic crisis, which is currently the case. The future of French wine is at stake mostly for export, but also requires a new approach to the internal market, aimed at halting the downward trend due to the emergence of new patterns of consumption.

Assuming that wine consumption rises with the economic level and that Western food consumption patterns extend to other countries, **the centre of global demand is expected to move and expand** to three main areas of consumption: China and India, bringing along South-East Asia (excluding Muslim countries) / North America, Latin America with Brazil, Argentina and Mexico as leaders / Mediterranean Europe, which will have halted its decline, Northern Europe (Germany, the Nordic countries, the UK) and Russia.

A new consumer is not only new in the sense that he is an additional client. Whatever his geographical origins, what makes him a new consumer is essentially his approach to wine, his mode of consumption at odds with the history of consumption that has dominated for centuries. Either wine is not part of his reference culture and he discovers it or, although he does have a certain wine culture, the development of his socio-economic environment has led him to change his consumer behaviour. Essentially occasional and not very faithful, he will have a different profile according to his geographical and cultural origins (notion of local consumption) and will be able to move from ordinary wine to more prestigious wine depending on the circumstances. In 2050, the demand will have become global, but will not be uniform for that matter. It may even be more complex and sophisticated than it is today.

Meanwhile, **the constraints of public health should converge among traditional and non-traditional countries**. They will stabilize (or even loosen up) in the first and gradually intensified in the latter. Moreover, health and environmental concerns at an individual level will prevail as a prerogative and a major incentive for consumers worldwide.

Concerning the development of wine supply, at least 3 parameters should lead to reshuffle the cards in wine production areas. **Climate change will lead to a shift of these areas and a modification of grape varieties to change the planting and production methods.**

In order to adapt to global warming, a number of countries will undoubtedly use **new agricultural techniques and technologies** that will allow them to better control quality facing the climatic and environmental challenges: irrigation is considered (where water is still available), the possible use of GMOs or the implementation of precision viticulture on a larger scale. This would also contribute to expand the number of countries able to produce wine.

Finally, following the example of other economic sectors such as beer, **the wine industry will enter a concentration process and large international brands** will develop. They will be capable of manufacturing “market” wine (close to final consumers) to match their tastes with an adapted packaging from grapes, grape must or wine purchased in bulk from other producers in other countries. Then, competition will no longer exist solely among wine producers/exporters, but among them the one hand and on the other wide-reaching operators capable of manufacturing “market” wine, i.e. close the place of consumption from raw material produced elsewhere and by others (grapes, must or even bulk wine), a wine product, a perfect and instant match to consumers’ expectations.

These three major changes will contribute in allocating the production to 3 main typological areas: **Europe** (traditional Latin and Northern Europe), the **“New World”** (South Africa, Argentina, Australia, Chile, the United States) and the **“New New World”** (Brazil, China and India on the one hand, North Africa, Bulgaria, Georgia, Hungary, Ukraine on the other).

Will the new **“Common Market Organization”** (CMO), adopted by the Member States of the European Union, which is fully effective since August 2009, be affected by the consequences of climate change and the new transformations in the global distribution channel? Will it uphold a difference until 2014 between AOP (*Appellation d’Origine Protégée* or *Protected Origin Appellation*) and territory (IGP) (*Indication Géographique Protégée* or *Protected Geographical Indication*)?

The New World which has, for the past 20 years, symbolized the success of a new wine concept with fewer constraints and more innovations will need to **move towards a model that is closer to that of traditional producing countries** while preserving what currently makes it successful. It will be based on product differentiation and up-market products, highly focused on fine and regional wines, with the objective of improving its position.

A vital convergence for this area because of the emergence of the “New New World”, which stands today as **a new El Dorado for the world of wine**. Brazil, China and India are gradually developing their wine production with the ambition and prospective to occupy leading positions worldwide.

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Introduction

The wine sector is specific and essential to France. It generates many positive externalities in inducing jobs upstream and downstream (roughly 350,000), valuing the (social, cultural & historical) heritage, maintaining people in rural areas where it is often the main economic activity and promotes biodiversity. It represents - with spirits - the second contribution (after aeronautics) to the balance of French foreign trade, since in 2008 the trade balance of wines and spirits displayed a record surplus of over 8.1 billion Euros. The wine sector is strategic and the increase in world consumption should enable it to further strengthen its positive contribution to our foreign trade. Sadly, we could but note that the volume of our exports has generally declined for the past 10 years in this context of a growing global market. As a result, we are still losing market shares.

Every one came to the same conclusions from the early 2000s. We have appreciated Jacques Berthomeau's work and report on the challenges of French wine in 2001 and Michel Roumegoux's report published in 2008 (whose analysis and recommendations we totally share). His strategic value improvement plan for the French wine industry within the horizon of 2020 and the perspective of a new Common Market Organization (CMO) that will enter into full force at the European level on 1st August 2009 have led the public authorities to take significant steps towards improving companies' competitiveness in this sector (implementing a 5-year plan to modernize French viticulture...). These measures are heading in the right direction. Subsequently, Georges-Pierre Malpel, Inspector General of Agriculture in France, was entrusted with a mission related to the after-effects of the action plan designed to modernize the sector, aiming, in particular, at improving wine promotion in international markets. May our own work assist him in this task by placing the currently implemented reforms in a longer-term perspective.

Indeed, as French Foreign Trade Advisors (CCE), it now seems vital to us to initiate serious thinking over the long term so as to identify and anticipate the underlying trends that will govern the development of the global industry by 2050, since we have reasons to expect real change. We felt a detailed analysis of the issues was necessary in order to anticipate the orientation we were to apply in the long term. This report will not attempt to describe the situation in 2050 beforehand; our goal is to consider, through forecasting techniques, the "field of possibilities." More advanced work related to different sectors has already been scheduled.

Before we share our thoughts with you, I wish to thank the International Organization of Vine and Wine (OIV) for having hosted some of our meetings and for having made available several of their international experts to us. This report would not have been as rich without the tools developed by the Institut National de la Recherche Agronomique *or French National Institute for Agricultural Research* (INRA) and without Patrick Aigrain's availability. I would also like to thank all the members of the French Foreign Trade Advisors' Wines & Spirits Committee, first and foremost Patrik Goasdoué, for their contributions and the time they accepted to devote to this work.

James de Roany
Chairman of the French Foreign Trade Advisors' Wines & Spirits Committee
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I. Evolution of global demand and position of wine in society

A. The strong trends that will mark the demand

From the early 80s until the middle of the 90s, world wine consumption has experienced a significant decline, falling from an average 280,718,000 hl per year between 1980 and 1985 to 224,253,000 hl between 1990 and 1995. This trend then gradually and significantly reversed. Global wine consumption thus rose back from 224.8 million hl in 2000 to 242.9 million hl in 2008. (*Source: OIV*). Unless a cyclical economic mishap occurs, global consumption is expected to keep growing sustainably.

This dual development can be explained by the conjunction of major phenomena:

➤ The fall in domestic demand in European countries with strong wine consuming traditions, i.e. traditional wine producing and consuming countries (mainly Spain, France and Italy). It is related to deep changes in wine consumption:

- a drop in the level of wine consumption per person per year;
- a change in people's consumption frequency

➤ An increase in the number of consumers worldwide

Wine consumption has emerged from its "cradle" (Latin Europe) to conquer the world, whether climatic zones are conducive to the vine growing (the New World then Asia), or not (North Eurasia, Equatorial tropical zones).

One may possibly think that this is directly connected to an increasing world population, i.e., to an increase in the theoretical number of new potential consumers. This is not quite the case since the introduction and development of wine consumption in a new geographic area of consumption depends both on the cultural context - encouraging wine consumption or not - and on the degree of economic development.

At the same time, wine consumption patterns have changed from a traditional model as was the case in Latin Europe - where wine consumption took place at mealtimes - to a more "modern", more informal model related to the emergence of a new consumer profile longing for a more accessible offer to the uninitiated.

1 / Changes in the domestic demand in countries with a strong wine tradition

Spain, France and Italy together constitute the largest consumer population in the world. Nevertheless, radical changes in their consumers' behaviour have already been at work for a number of years, they are gradually calling into question the dominance of these traditional markets facing the emerging markets.

It is well known that wine consumption per year per capita in these three countries has dramatically fallen. According to data provided by the International Wine Organization, in Italy it has dropped from 60.4 litres in 1996 to 46.5 litres in 2005. Over the same period, the French and Spaniards' annual consumption has fallen by 5 litres, respectively from 59.5 to 55 litres and from 36.1 to 31.8 litres. As a comparison, the French consumed 155 litres on average in 1955 litre per capita per year.

It seems however, that this consumption decrease has been experiencing a slowdown in France since 2005 and has stabilized in Italy.

But, whatever their level may be, what is most important is that these figures reflect a structural change in domestic demand for wine in Latin European countries. The French example seems to illustrate this reality, even though each country has its own particularities.

The various studies conducted by the French National Institute for Agricultural Research since 1980 on the issue emphasize the fact that on the one hand the lower consumption frequencies are for the most part responsible for the decline in consumption - the number of consumers is said to have remained broadly stable over the same period – on the other hand, consumer's sex and age have a predominant influence in terms of consumption frequency beyond all cyclical factors.

The age factor is the combination of two effects, namely:

- *The life cycle effect: consumers' tastes change as they grow older.*
- *The generation effect: individuals born during the same period tend to have tastes and consumption patterns that match a historical context*

This results, on the one hand in consumers' later and later access to wine and in their longer learning period – consumers grow older – and on the other in decreasing consumption frequencies – the number of occasional and non-consumers has become paramount.

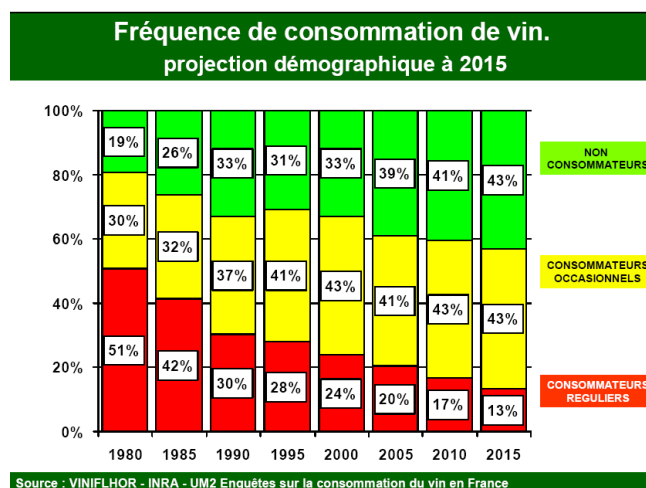
In other words, these studies demonstrate that - since 1980 - each generation includes a lesser number of regular consumers than the previous and the share of regular consumers within a same generation does not increase with aging, whereas the number of occasional and non-consumers does.

In figures this means:

- that there are virtually no more regular consumers under the age of 25;
- that in a market of 30 million wine consumers in 1980, France counted 61% of regular consumers among which 36% were women and 39% occasional consumers among which one third were women;
- that with a market of 31 million wine consumers in 2005, France only counted 33% of regular consumers among which one third were women and 66% of occasional consumers with a gender balance;
- that the proportion of non-wine consumers over the age of 14 in the general population had increased from 19% in 1980 to 39% in 2005.

According to the same INRA studies, it is established that an occasional consumer consumes on average 5 to 6 times less wine than a regular consumer. But beyond consumption doses, consumption patterns also differ. People have gone from a regular consumption mainly during daily meals - where drinking wine was considered as food consumption - to more festive and convivial drinking, which is therefore more often occasional.

The projections for 2015 proposed by Viniflor and INRA confirm - if there still was a need to do so - these underlying trends. Out of a population considered old enough to consume that is estimated at 51 million people, the share of regular consumers is projected to reach 13%, occasional consumers should remain at 43%, so would non-consumers who also virtually include half of the population.



Wine consumption frequency
Demographic projection for 2015

Source: VINUFLHOR – INRA– UM2 Studies on wine consumption in France

These trends will not reverse in the medium term, and no scenario assuming a recovery in consumption is considered. One should, however, experience a progressive form of “landing” and stabilization in terms of volume of consumption (both overall and individual) and in terms of consumption frequency segmentation.

Conclusions:

1 / In the short, medium and long term, French operators, but also Italian and Spanish operators, will still need to seek their sources of growth in export.

2 / A new demand remains to be conquered in strongly traditional wine producing and consuming countries. For producers from these countries, new consumers and new sources of growth in the long term are not only overseas, they are also more and more often in their domestic markets.

The proportion of occasional and non-consumer being what it is now (over 80% of the French population now being old enough to consume), these two categories will emerge as new targets to be conquered and retained by all means in presenting them an appropriate offer and developing innovative approach strategies. Indeed, on the one hand the French operators - but this also applies to the Italians and Spaniards - will be unable to achieve international sustainable development without being able to rely on a reinvigorated domestic market where they will have to be the main beneficiaries, and on the other hand, increasingly strong foreign competitors - also seeking new opportunities - will not fail to target these markets.

In the long run a very different scenario - at odds with the trends observed to date - will presumably occur in Latin European countries where there is a strong wine tradition: a gradual rise in consumption based both an increase in individual consumption among

occasional and new consumers arising among non-consumers, given that the number of regular consumers and their standard consumption levels will have stabilized.

2/ What will the new areas of (mass) consumption be?

Population distribution and world wine consumption in 2005:

<i>Continents</i>	<i>Population</i>	<i>Percentage</i>	<i>Wine consumption (hl)</i>	<i>Percentage</i>
<i>Africa</i>	964,294,291	14.40%	6 100 000	3%
<i>Americas</i>	914,401,390	13.65%	49 200 000	21%
<i>Antarctic</i>	1,500	0.00%	0	0%
<i>Asia</i>	4,044,270,947	60.39%	17 200 000	7%
<i>Europe</i>	739,546,615	11.04%	159 600 000	67%
<i>Oceania</i>	34,941,108	0.52%	5 400 000	2%

In theory, changing demographics should directly determine changes in the number of potential consumers. But other factors come into play and will influence the distribution of world consumption: economic development in different areas, religious censorship, moral and social prohibitions, the potential affinity of each area with wine and hygienist policies.

In terms of demography, the world population will keep both growing and aging. According to a UN report published in 2007, there will be 9 billion people in 2050 or 2.5 billion more than there are today. The less developed regions, whose population will settle around 7.9 billion people in 2050 against 5.4 billion today, will mainly absorb this increase. In contrast, the population in the more developed regions will remain the same with 1.2 billion people.

In 2050, the 18 most populous countries will include:

Rang	Pays	Population en 2050	Population en 2000
1	India	1531,44	1016,94
2	Chine	1395,18	1275,21
3	Etats-Unis	408,69	285
4	Pakistan	348,7	142,75
5	Indonésie	293,8	211,56
6	Nigéria	258,47	114,74
7	Bangladesh	254,6	137,95
8	Brésil	233,14	171,79
9	Ethiopie	170,98	65,6
10	Rép. Dém. du Congo	151,64	48,57
11	Mexique	140,23	98,93
12	Egypte	127,4	67,78
13	Philippines	126,96	75,71
14	Vietnam	117,69	78,14
15	Japon	109,72	127,03
16	Iran	105,48	66,44
17	Ouganda	103,25	23,49
18	Russie	101,46	145,61

* *In millions of inhabitants. Source: United Nations Fund for Population Activities (UNFPA), 2004*

One can observe that Asia, which is at present already prominent as to its population (60% of the world population) will be one of the major population (and consumption?) poles in 2050, and so will be Africa, that is, markets still proportionally undersupplied in “wine products”.

However, one can already consider that Pakistan, Indonesia, Bangladesh, Egypt and Iran - although among the most populated countries - do not constitute potential targets for obvious religious censorship reasons.

To these first two criteria - religious censorship but also moral and social prohibitions, one must add an economic development factor. Since wine is not a staple; its consumption is directly connected to the economic development level in different areas. According to a PricewaterhouseCoopers (PWC) study taking the U.S. as base 100, the richest countries in 2050 will be:

Country (Indices with US = 100)	GDP at market exchange rates in US \$ terms		GDP in PPP terms	
	2007	2050	2007	2050
US	100	100	100	100
Japan	32	19	28	19
China	23	129	51	129
Germany	22	14	20	14
UK	18	14	15	14
France	17	14	15	14
Italy	14	10	13	10
Canada	10	9	10	9
Spain	9	9	10	9
Brazil	8	26	15	26
Russia	8	17	17	17
India	7	88	22	88
Korea	7	8	9	8
Mexico	7	17	10	17
Australia	6	6	5	6
Turkey	3	10	5	10
Indonesia	3	17	7	17

Source: PricewaterhouseCoopers estimates (using United Nation sources),
PricewaterhouseCoopers LLP – March 2008

According to this study, living standards in Western European countries should remain stable whereas that of emerging countries should experience a tremendous boom. Among the most rapidly developing countries, taking the U.S. as base 100 taking into account the parity of these countries’ purchasing power, one can reasonably believe that China’s GDP should grow from 51 to 129, Brazil’s from 15 to 26, Mexico’s from 10 to 17 and India’s from 22 to 88. Russia, the USA and Canada should remain at their current level of wealth, just like Spain, France, Italy and the United Kingdom, whereas Japan and Germany should see their wealth decrease.

The major prospects of future global wine market development are thus beginning to take shape. Especially since the each of these countries’ affinities with wine cannot be doubted.

According to projections made by the International Wine and Spirit Record (IWSR) on behalf of Vinexpo over the period 2008-2012, world consumption is expected to grow by 6% in volume. Still according to figures provided by the IWSR, world consumption in 2012 will therefore have increased by 14.07% (347.33 million 9-liter boxes) as compared to 2003, which is the equivalent of one year of U.S. production, the States being the 4th largest producer.

In terms of value, this increase is even more obvious: +9% in 5 years and +24% in 10 years, representing a global market of 166.117 billion dollars in 2012.

The study confirms that this growth is no longer driven by traditional wine producing and consuming countries, but by the emergence and development of new consumption poles. France and Spain - present in the top 10 largest consumers - have suffered consumption decreased by respectively -8.69% and -9.06% over the 2003-2007 period. This decline is expected to continue over 2008-2012, representing - 2.91% for France and -5.91% for Spain. Bear in mind, however that the French's decrease in consumption should tend to slow down. Italy appears to still hold its own game with a fairly stable consumption, which allowed it to rise to the first world rank in 2007. But by 2012, things will obviously have changed.

Over the period 2003-2007, among the 10 most wine consuming countries, those supporting the dynamism of the global market were undoubtedly the USA (14.8% of consumption) and the United Kingdom (12.4% of consumption). From 2008 to 2012 the U.S. should continue along the same lines (+11.90%) and become the world's largest wine consuming country before Italy and France. The United Kingdom should however experience a slowdown in the development of its wine consumption (+5.95%), just as Germany (2% instead of 4%). However, a 1% growth in these markets represents a significant volume. This is why Germany and the United Kingdom in 2012 should keep their ranks as 3rd and 4th most important wine consuming countries.

However, during the same two periods, the highest increase rates have been and will still be recorded by China (+62.78% from 2003 to 2007; +36.66% from 2008 to 2012) and Russia (+59.24% from 2003 to 2007; +24.48% from 2008 to 2012), which means that by 2012 China and Russia will both have surpassed Spain in terms of consumption volume and will respectively reach the 8th and 7th rank among the world's most important wine consuming countries behind Germany, the United Kingdom and Argentina.

It should also be noted that other countries such as Brazil and Canada - that are still "in the middle of the chart"- experience very promising performance levels. Still according to the IWSR, Brazil has become the second most important wine consuming country in Latin America behind Argentina with 326 million litres in 2006 and a 369 million litre-prospect for 2011 (source: Wine Business International.com). According to a study carried out by the Institut du Vin Ibravin (Brazilian Wine Institute) the annual consumption per capita is currently 2 litres and could reach 9 litres in 2030, which would place the country among the 5 most important wine consuming countries of the planet. As far as Canada is concerned, 580 million bottles will be uncorked in 2012, against 479 today, or a 3 times greater growth than that of the global demand.

At the moment, these new markets are still far below mature markets' consumption per capita such as France's for instance. Therefore, their growth potential is enormous.

The main uncertainty, however, rests on India - still retaining many obstacles to the importation of foreign wines - but which, in parallel, is probably the country with the greatest potential since it is designed to become the most populous country in the world and has a substantial middle class.

As we approach 2050, one can easily assume that the main areas of wine consumption in the world will be:

- China and India that could lead other countries from Southeast Asia;
- The United States coupled with Canada;
- Brazil coupled with Argentina and Mexico;

- Europe: countries from Latin Europe whose consumption will have stabilized, or even strengthened, along with Germany, the United Kingdom and Northern Europe;
- Russia.

Finally, it is important to stress the fact that, beyond figures, other parameters have an influence on the speed and penetration rate of the wine product in markets and must imperatively be taken into account in order to win new aficionados:

- What is the role assigned to food? Is it perceived as beneficial or, as is increasingly the case, as a source of health problems?
- What is the organoleptic profile of an Asian or a Russian consumer for instance? (what tannin, what bitterness? what degree of sweetness)? What consumption opportunities and circumstances do they have (at home or outside? Between or during meals?) ?
- What are their consumption habits? Hot drinks, cold drinks, drinks at room temperature?

3 / Conclusion: the “New Consumer” profile

The new consumer is not new only in the sense that he is an additional client. Whatever his geographical origin, what makes him a new consumer is his approach to the wine product, his consumption pattern - at odds with the history of consumption that has dominated in Latin Europe for quite a few centuries.

Either wine is not part of his reference culture - that is to say he is discovering the wine - or, although he does have some wine culture, the development of his socio-economic environment has prompted him to change his consumption behaviour.

This new consumer is therefore to be found both in countries that have already been open to wine for a number of years such as the United States, the United Kingdom and Northern European countries, in markets that are beginning their wine apprenticeship such as China, in countries that are rediscovering wine such as Russia and in countries with a strong wine tradition (Spain, France, Italy...).

There is no need here to dwell on detail on the new consumer profile since many have already done so, literature on this subject is abundant.

It nevertheless seems important to stress the fact that:

- the new consumer is defined primarily by the fact that he is occasional and not very faithful.
- The new consumer is not only to be found beyond our French or Latin borders. He is all over the world, including in France.
- The new consumer is, for that matter, not built on a single model, he does not have the same expectations vis-à-vis the wine product everywhere and in all circumstances. It is wrong to think that the new Chinese consumer is in all respects identical to the new American or German consumer. One can speak of local consumption. Similarly it is wrong to believe that the new American consumer unavoidably always likes to consume the same type of wine regardless of his opportunities to consume. All beer drinkers do not appreciate the same beer and each individual beer consumer does not necessarily always drink the same beer.

- For the new consumer, or rather the new consumers, wine is no longer just a food product he considers necessary, unlike the regular user to whom you just more or less need to provide a wine supply. The new consumer, having to be attracted to this consumer product, must be studied accurately and segmented, so that the product offering and the approach strategy are as tailored to target markets as can be.
And that's new!

In 2050, the demand for wine will be worldwide. It will not be uniform for that matter. It should even be more complex and sophisticated than it is today.

B. What place for wine in society?

The new consumer has to be conquered. As we have seen above, one has to offer him products whose features and image are in line with his expectations but also with his aspirations and concerns, both individual and collective.

It is clear that the agricultural food production as a whole is increasingly constrained by two types of societal issues: public health issues on the one hand, food safety, sustainability and eco-responsibility on the other.

Wine being an agricultural production, it can not escape the following considerations.

1 / Wine and public health

Wine being considered as alcohol, this is a major issue because it determines - in each market - the ease with which consumers will have access to wine or not, and symmetrically the ease with which producers will be able to access consumers.

A State's health policy and its development directly depend on four factors:

- its citizens requirements or tolerances with regard to health but also to safety;
- its level of economic development;
- its budgetary constraints;
- the recommendations issued by multilateral authorities.

In all traditional Latin European countries that produce and consume wine, a policy limiting alcohol - and therefore wine consumption- with lower and lower tolerance levels has already been implemented for numerous years. This policy comes with specific measures aiming at significantly reducing or even prohibiting advertising for alcoholic products. New measures have even been recently adopted in France to limit and even prevent access to alcoholic products in a number of circumstances in public life: in workplaces, in the context of student parties, in petrol stations beyond a certain hour, etc. Objectives: to reduce the number of road accidents due to alcohol and to avoid diseases related to excessive alcohol consumption so as to meet a population's expectations on the one hand and to reduce the impact of such accidents and diseases on the development of public health expenses on the other.

Although public health policies are difficult to predict accurately, one of the scenarios proposed by the INRA in its forecasting study "Vines and Wines", which we believe is the most likely is that in countries with strong wine tradition that are among the most economically developed countries, public health constraints are bound to stabilize (or loosen up):

- we believe that, for fear of the authorities, excessive reduction of the maximum blood alcohol content allowed may become counterproductive. Indeed, if tolerable consuming thresholds were too low, they would by no means reflect the reality of culturally accepted (or even encouraged) consumer behaviours in these countries.

- because an effective long term public health policy must be based on consumer education and not just on the simple idea that a framework of collective behaviours (restricting advertisement, enforcing anti-alcoholic regulations...) is enough to induce behavioural changes in private spheres.

Concomitantly, an overall concept of food hygiene will gradually prevail in developed countries. It will be the result of the synergy among 3 factors:

- Consumers are increasingly concerned about their own eating practices.

- Scientific progress will allow better knowledge of the functionality of nutrients and individuals' genetic ability to make the most of them.

- Private health insurance is bound to develop.

By 2050, all this will contribute to stabilizing public health policy constraints in developed countries. Yet, over the next 40 years, public health constraints in emerging new wine-consuming countries are bound to develop and converge towards the level of those prevailing in developed countries. They will obviously not be the same since each country has its own specificities on the subject, but they will be just as pregnant.

On an international level, the WHO should continue its fight against obesity which has become, after tobacco and alcohol, the new major goal in terms of public health.

All drinks will be within the scope of these globally hygienist policies and all wine-consuming countries will be constrained by possible new regulations.

It would be counterproductive for players in this sector to fight head-on against these constraints, to stand in their way; otherwise they would be liable to compared to tobacco manufacturers. To try to overcome these constraints or to circumscribe their hampering effects and make sure wine is no longer perceived only as an alcoholic beverage, the actors in the sector will need to apply means and develop strategies highlighting the actual positive aspects of wine in terms of health in a context of moderate consumption.

As an example, developing the use of wine extracts such as polyphenols in cosmetics or developing the concept of FOSHU (*Food for Special Health Uses*) is likely to enhance the image of wine.

2 / Food safety, sustainability and eco-responsibility

Here again, the level of economic development is an important element, so are the changes in the global regulatory framework.

The higher the economic development of a country, the more a consumer is aware that his food consumption has an influence on his health, and the more he is sensitive to changes in his environment and concerned about the impact of his behaviour on this environment.

Furthermore, it is clear that for the past few years a form of world public opinion has emerged and expresses itself on major issues affecting the future of the planet and weighing heavily on political decisions and on the evolution of consumption patterns.

Pressure from consumers and authorities on these issues will naturally increase, stronger and stronger obligations will progressively be implemented. As an example, given the impact of pesticides on human health and on the environment, their use will be increasingly regulated and may even - under the influence of extreme pressure - be banned from a number of countries by 2050. Yet, viticulture is a major consumer of these products.

Another example is that - as we approach 2050 - all economic sectors will need to adapt to the regulations that are to be implemented so as to limit their environmental impact, particularly as regards CO₂ emissions, and to meet consumer expectations on this issue.

As a consequence, wine producers will probably have to print the amount of CO₂ needed to produce one litre of wine on the back of each bottle. Besides, a number of wine-growing regions such as Bordeaux and Champagne have already started to address the problem. A study conducted at the request of the Conseil Interprofessionnel du Vin de Bordeaux or Bordeaux Wine Trade Council (CIVB) in 2008 shows that the annual production of some 760 million bottles of Bordeaux generates 200,000 tons of carbon equivalent (CE). The CIVB has therefore committed itself to reduce 75% of the emissions by 2050. This process shows that this problem needs to be anticipated since the changes will not be instantaneous but will take several decades.

II. Major changes will upset the global supply

The wine trade has always been developed towards other countries. Greeks and Romans used to carry wine from one end of their empire to the other (export-import). This internationalization resulted, over the centuries, in adapting the wine industry:

- barrels were invented for easier wine transportation;
- vineyards were planted near waterways to circumvent ground transportation (more expensive): in the region of Bordeaux, in the Rhone Valley, in Burgundy...

The share taken by export volumes in global wine consumption has grown significantly over the last decade: by over 33% in 2005 against 18% 15 years ago. All wines are concerned. This acceleration is related to the emergence of a growing phenomenon, which is to mark the sector throughout the 21st century: the globalization of consumption, as highlighted above, but also the globalization of wine production. Three major changes can indeed disrupt the current landscape:

- global warming will lead to amendments in vine planting or even to a shift in production areas;
- technological revolutions, including the emergence of GMOs, should allow wine growing in many countries;
- a revolution in the sector's international economic system itself. Following development model experienced by the beer industry, the future competition - by 2050 - could exist not only among wine producers/exporters who, for the most part, sell a number of domestic-oriented products abroad (a stock-exhausting strategy facing an oversupply situation), it could also exist among being able to produce "while marketing" i.e. close to the place of consumption and from a feedstock produced elsewhere and by others (grapes, grape must or even wine purchased in bulk) a wine product that perfectly and instantly matches consumers' expectations.

These three major changes will contribute to a redistribution of the cards in all major producing areas, with different issues depending on their levels of development. Accordingly, one can already distinguish traditional producing countries (France, Italy, Spain, Portugal), New World countries (Argentina, Australia, South Africa, Chile), and discern the emergence of a "New New World" with major and tier part actors (Brazil, China, India, Georgia, Bulgaria, Hungary, Ukraine...).

A. The factors of change in the productive landscape

1 / The climate change: an amendment to vine planting or a production area expansion?

The consequences of climate change affect wine production through 3 channels:

- Higher temperatures accelerate vine's development cycle and enables, at the same time, a number of countries to have a favourable climate for growing grapes (in this regard, France has experienced a temperature increase of 0.9°C over the past century, and of 0.4°C to 0.6°C degrees over the last decade).
- A change in rainfall ratios threatens certain regions/countries' water resources. As a consequence, a wine competition can arise with other crops, and possibly questions on the soundness of irrigation regulations.
- The increased frequency of extreme events such as storms with hail or rain weakens growers' positions by inducing a significant and quasi-irreversible loss of small elements in their vineyards' soil.

Unlike other types of cultivation, vine growing traditionally requires letting the climate do its work (at least as long as the AOP rules (*Appellation d'Origine Protégée or Protected Origin Appellation*) do not change).

Moreover, it is often said that the notion of "terroir" (*local land*) - essential to the world of wine - depends by 50% on the climate. That is what determines the differences in taste of a wine from one year to another and from one region/country to another.

So far, global warming has had rather positive effects on wine. This results in sweeter, more alcoholic and therefore less acidic wines. Regions with a climate that is imperfectly suited to viticulture have sometimes managed to achieve good vintages in the past 20 years.

But France, with the scorching summer it experienced in 2003, foreshadows what might happen to traditional wine producing countries. Marked by a stronger summer drought since June, the heat wave gave birth to a peculiar wine that can certainly not be stored very long even though it is not the announced disaster.

And the phenomenon is not completely new, since for almost 20 years, vine and phenology professionals agree to note the influence of higher temperatures on wine quality and vine development. Such was the theme of the symposium held in Dijon in 2007 by the Climate Research Centre and the UNESCO "Wine and Culture" Chair of the University of Burgundy.

Between 1950 and 2000, the growth cycle has shifted and shortened, especially the grape maturation period (between floraison and harvest). It was found that - on average - budburst was 6 days in advance, floraison 11, veraison 15 and harvest 17 (G. Jones, Oregon University).

In the Rhone Valley, the bans on harvesting (bans are a prefectural decree fixing the official date of the first day of harvest) in Chateauneuf du Pape have been advanced by 3 weeks over the last 60 years.

In the Cotes du Rhone region, they were advanced by nearly a month in fifty years. More generally, all French wine regions are experiencing this phenomenon, since the Bordeaux, Alsace, Champagne and Burgundy regions are concerned.

For their part, southern vineyards (California, South Africa and Australia) bear the brunt of water stress caused by lesser rainfalls. Australia is a prime example of what could happen to these countries and to the counties bordering the Mediterranean Sea including South-Eastern France. In 2007, extreme heat, coupled with a severe drought and a lack of irrigation caused the disappearance of thousands of Australian winemakers.

The threat on water resources is a reality in Europe: if the scenarios tending to decrease summer rainfalls (by approximately 20 to 30%) were confirmed in the coming years all around the Mediterranean Basin, this could lead to the abandonment of vineyards in non-irrigated areas on this zone.

Another consequence of global warming is that more and more grapes are roasted by the heat, leading to lower yields and - in some cases - to their “over-ripening”, which forces certain countries to de-alcoholise their production (e.g. Napa Valley where 75% of the wines has to be de-alcoholised). As a consequence, changes in vine growing had to be made: less pruning and trimming to protect the grapes from “roasting,” earlier harvests to avoid excessive sugar and therefore unwanted alcohol ratios.

While compliance with typicality could be maintained with a moderate temperature increase of 2 to 3°C, things would be different beyond it (4°C to 5°C). Still, climate models and an assumed development in CO₂ emissions anticipate a global warming of 1.4°C to 5.8°C during the current century. This could lead to two phenomena:

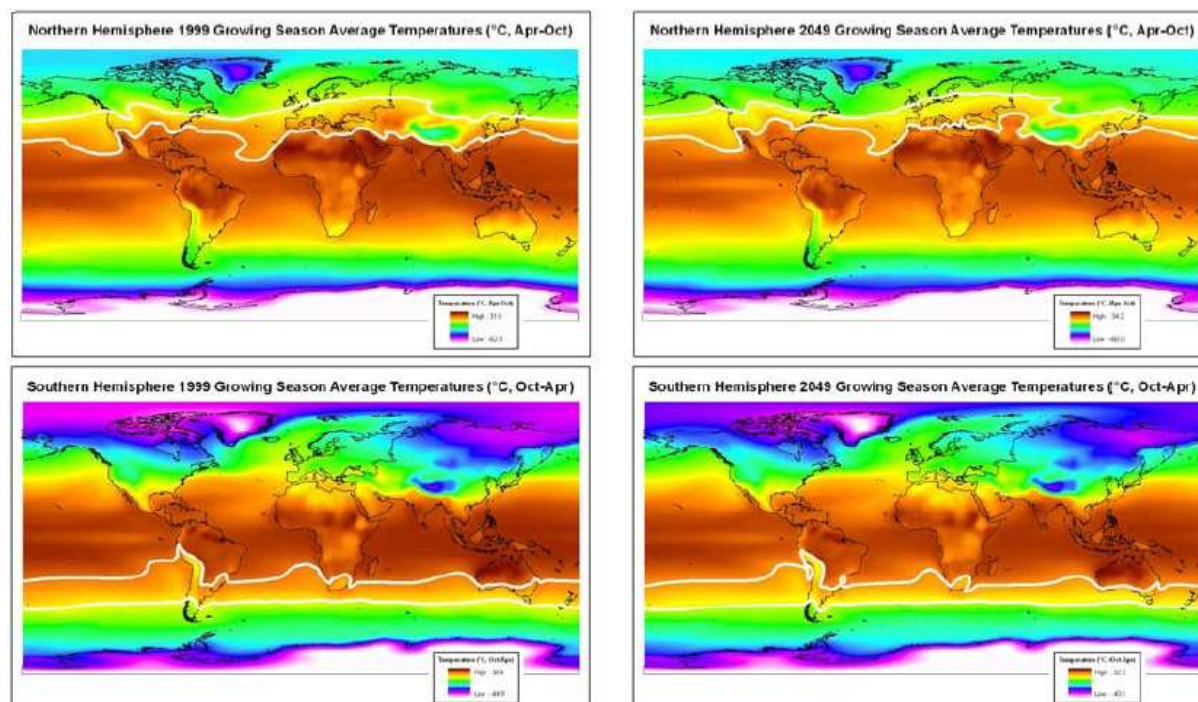
- a shift in production areas;
- an obligation to adapt vines to new temperatures and therefore to experience a greater change in typicality.

Since 1950, the geographical zone that is favourable to vine culture (mean temperature between 10°C and 20°C) has moved by 80 to 240 km towards the poles (according to G. Jones). According to the Intergovernmental Panel on Climate Change (IPCC), an increase of one degree in temperature equals a displacement of nearly 160 km to the north. With the higher temperatures that are forecasted (1.4°C to 5.8°C over 100 years), one can imagine that, considering the current state of things, the most threatened vineyards worldwide will be those in regions that have a Mediterranean climate: France, Spain, Italy, Australia, South Africa and California. The consequences will be excessive heat, drought and soil erosion.

Conversely, Southern England - where vines had disappeared between 1550 and 1850 due to of the “small ice age” - could benefit from this climate change and be able to grow the precious grapes again, as was the case in the XIth and XIIth centuries.

Other European countries could also benefit from this new climate distribution at some point in this century, such as Belgium, whose current vineyards do not exceed 60 hectares, the Netherlands or even the south of Sweden (where there already are a few vineyards) in the case the weather gets 4°C to 5°C warmer. In the rest of the world, global warming would be welcome in Oregon, and in several regions of Canada. China and its Penglai region - known as the Chinese Bordeaux, since it is located at the same latitude - could then afford to initiate

cultivation on a larger scale by growing vine regardless of the altitude. The map below gives a rough idea of the outreach of this phenomenon. The band that is conducive to vine growing tends to move toward the poles.



Source: *Climate Change: Observations, Projections, and General Implications for Viticulture and Wine Production I*
Gregory V. Jones

G. Jones's study - from which this map was borrowed - analyses the case of Bordeaux wines. Temperature rises in this region should reach approximately 2.3°C, which would consistently alter the average temperature of 16.5°C observed over the last 50 years. However, an average temperature of 18.3°C during the growing season would place Bordeaux at the farthest limit of optimum temperature for many varieties of red wines.

According to Jean-Pierre Chabin from the University of Burgundy, certain regions will therefore experience an extension of their vineyards and for others it will decrease. But during this shift in production areas, we will also witness a change in the typicality of wines and an adjustment of the oenological practices, which will cause them an obvious problem in retaining their AOC status.

Traditional varieties will no longer offer the same typicality. For instance, in Beaune in the Burgundy region, pinot noir would offer the typicality of a Côte du Rhône from the Vienne area, which perfectly illustrates the latitude-heat transfer between two regions.

Then, because of vine's shorter growing cycle, the period where the quality of a vine is most susceptible to heat (floraison-maturity) would be midsummer, when the expected warming would be the greatest since it will have shifted from late August to mid-July. The temperature rise would therefore be twofold. Agronomic expertise will have to evolve and be able to solve these problems in order to preserve wine characteristics and cultivation within each region. By merely observing major trends, one can assert that vines will be higher and wider to reduce the effects of sunlight and that producers will need to adjust fertilization and irrigation.

They will need vines that are more resistant to diseases, heat and cold, humidity and drought; They will have to work with yeasts whose yields of alcohol are lower in areas with high temperatures, and with yeasts whose yields of alcohol are higher in temperate zones; they will have to pluck leaves on the vines to reduce their production or reduce the planting density to diminish water stress and production.

The vines will also be adapted to each country's new weather patterns. Already, Mourvedre grapes are now planted all through the Languedoc, whereas they used to be found only in the Bandol area. In the same way, Merlot - another variety - may possibly spread northward towards Germany. Syrah cultivation could spread to Burgundy and Champagne and replace Pinot noir, Burgundian Pinot could move to the lands of Lorraine, and one can imagine growing Chardonnay Champagne in Kent chalk.

Knowing that a vineyard is planted for several decades, it is important to anticipate these issues so as to determine whether the response should be automatic or gradual over time.

2/ The technological revolution of grapevine

Never has viticulture seemed poised to be controlled that well. The use of modern technology illustrates perfectly well a willingness to apply the same recipes to vineyard as to other cultures. Thus, two major revolutions are underway: the development of precision viticulture and the prospect of introducing GMOs.

Precision viticulture results from a wish to dispense to each point of a plot - or even to each vine - the most appropriate technical maintenance. It relies partly on mapping each plot according to its soil characteristics, disease susceptibility or performance and partly on the digitization of this data and on the development of applications offering vine growers a real automatic and targeted autopilot (via a coupled GPS) for their vineyards, according to the characteristics of each plot and the variability that may exist their various plots. Thus, if the vines of a plot proved to be more susceptible to mildew attacks, they will be able to target the application of a treatment and to administer a precise dosage from a sprayer equipped with a duly informed GPS device. Sensors will be able to detect infections vine by vine and apply the appropriate treatment immediately and automatically (chlorosis, downy mildew, powdery mildew, and even parasites, acarids, grapevine worms...)

Precision viticulture therefore allows reducing both:

- product and energy waste in the interests of money saving and environmental friendliness;
- performance gaps between different parts of the same vineyard.

In the "prestige" wine category, a grower cannot afford to have several dozens of vines with different yields. As to producers who rely heavily on the typicality of their wines, precision viticulture would enable them highlight their specificities.

It also appears that the future of viticultural techniques relies on the use of GMOs. Fourth plant whose genome has been sequenced - so far an estimated 14,000 genes have been identified out of the 30,000 included by grapevine, among which genes for resistance to powdery mildew or genes controlling vine growth until grape berry development. Others are being authenticated which will allow controlling the size of the berries. It is also estimated that the grape genome will have been entirely sequenced within 15 years.

One can imagine at once the consequences a perfect mastery of wine genetics could have. This would allow creating and growing vines that are more resistant to diseases, to cold, to drought and to humidity. In addition, working with yeasts whose yields of alcohol are higher in areas with low temperatures, lower in areas with warmer temperatures or higher in more temperate climate zones would make wine production possible in much larger a space than what can be done for the moment. These two phenomena would therefore allow adapting viticulture to all sorts of climates and vineyard lands and therefore to all sorts of regions in the world. One could therefore find “typical” wines everywhere; the geographic factor would no longer have an influence. In this scenario, vines would be – in the same way as “creepers” grown under a wide range of climates.

The impact on production levels and global competitiveness is therefore obvious in terms of increased resources in grapes, less direct but equally important in terms of organising the global channel (see next section).

Moreover, this would certainly distort competition among countries that are more open to this issue than others. Similar to the recent developments experienced in the agri-food sector, the wine world could progress at two different rhythms on this issue. For instance, Australians will undoubtedly refuse to helplessly watch the destruction of their vineyards by drought. Americans will certainly not deprive themselves from genetic resources allowing them to improve their grapes (namely to lower their sugar or alcohol ratios) and strive for optimal quality. Neither will the Chinese have too many scruples in using GMO vines.

France, which conducts trials behind closed doors in Colmar - testing a transgene against the “Fanleaf” disease - would refuse to be left behind on this issue. But this research work has been and must still remain confidential - at least in Europe. Indeed, GMOs having the image they have, their use in viticulture or any communication on research done in that area could have dreadful consequences on wine marketing – since this product is perceived as the symbol of a timeless art de vivre. Moreover, European consumers, and therefore the European authorities have - until now - adopted an unquestionable anti-GMO attitude.

3 / A more globalized food type offer following the example of beer/brewery

There are striking similarities between the evolution experienced by the global beer market economic system - in which Germany has lost its first place - and the transformations that are currently affecting the world of wine within which France is poised to lose its leadership, which will undoubtedly be a revolution as we approach 2050.

In our collective imagination, Germany is the land of beer as France is the land of wine. It counts nearly 1,300 breweries producing over 5,000 brands. In the same way as the French appellations system, the “purity law” dictates the only ingredients allowed in bottom-fermenting beer (water, barley malt and hops) and has largely ensured the prestige of German beers. Its market is the 5th largest major world market behind China, the United States, Russia and Brazil due to its level of consumption per capita, which is the highest of all major markets (95L/inhab/year) and German beer export has increased by 118% in volume in 15 years.

Unfortunately, German export growth - largely achieved through low-cost products so as to use the surplus production capacity – has proved to be weak as compared to the global trade growth over the same period (+163%), Germany’s market share declined by almost 3% and its domestic demand is dropping (- 16% between 1991 and 2001). None of the major world leading brewers is German. None of the large international brands is German.

Beyond the supply-demand mismatch (products that are too typical for traditional German consumers), explaining the loss of the German leadership is simple: the international economic model upon which the beer market relies has changed, and Germany has failed to adapt as to it much as other countries, suffering mainly from the lack of major international groups.

Since the late 90s, the phenomenon that consisted in concentrating and internationalizing brands and brand operators has accelerated. In 10 years, and by purchasing many breweries around the world, the top four brewers have improved their global market share from 18% to 51%! Such is the case for AB-Inbev (Stella Artois + Brahma + Anheuser-Bush), SABMiller, Heineken and Carlsberg, which are Belgian, English, Dutch and Danish and who weigh more than the German market whereas the German industry, lacking cohesion because it is overly regulated and protected, is still trying to generate national players.

This gradual and inevitable concentration process came with a radical transformation of the international development method. The “while marketing” production logic has replaced the export logic.

German brewers are still exporting their products - mainly to Europe - part of which at low prices to exploit their surplus production capacity and they are often limited as concerns their growth in emerging countries because of their high price positioning (related to transport costs, taxes...) and to their distribution method through specialized importers who are growing increasingly weak as opposed to mass-market retailers. Major international operators - after having been large exporters - have gone past this stage and now focus, mainly in emerging markets, on their “while marketing” production. Producing locally in the target market enables them to offer products that are better adapted to their customers’ needs, better quality than local beers at more competitive prices than imported beers. For instance, in 2004, Beck's - a brand from the Belgian group Ab-InBev - switched to local manufacture in Bulgaria. Within one year its sales volumes grew from 5,000 to 110,000 hl. And this is the way major world leading brewing groups managed to build strong international brands, enjoying high consumer visibility. They were able to rely on mass distribution, which was especially concerned by mass consumption products.

Could wine experience the same changes? The process seems to be underway.

Between 1980 and 2005, 1265 restructuring operations in the world of wine were achieved (*According to an INRA Study entitled "Globalization of the world wine market and restructuring of the supply-side" published by the INRA Social Sciences, Agriculture and Food, Space and Environment*. Even if the trend is downward since 2003, the internationalization phenomenon through IDEs should increase. This serves several purposes:

- Seeking the critical size (approximately \$ 300 million) in order to benefit from scale economies.
- Increased awareness among consumers through a strong and visible brand.
- Securing supplies, which is a priority when a large brand aims at having a constant raw material supply while responding to precise specifications. All inter-tropical vineyards seem to have a great potential to fulfil this task, since their climate allows several harvests a year.

- Controlling distribution networks that can meet large retailers' requirements or be closer to consumers.

Regarding the “while marketing” production, the process seems to already have started also by the achievement of the first stage, namely “while marketing” wine bottling. For instance, the Castel Group owns a plant in Russia that imports and bottles bulk wine. These wines can therefore be well positioned at more competitive prices, which allows this French operator to keep growing despite the current crisis.

Another example is Waverley in the United Kingdom. This Scottish & Newcastle subsidiary (now Heineken) has imported bulk wine from France, Italy, Australia, South Africa and Chile for years... Waverley's marketing approach is derived from its belonging to a brewery group. Its brands, products, packaging and marketing methods were developed after extensive studies to target various consumer groups and respond appropriately to their expectations. Their trademark “Oliver & Greg's,” for instance, targets a neophyte public that only identifies with grape varieties and with brief taste descriptions. The origins of a wine are discreetly relegated to the mandatory notice, and can - of course - change according to their supply conditions. This brand is sold in small bottles on clever racks that allow their promotion on the counter in pubs.

Thus, by 2050, in the vein of what happened in the beer sector and similar to what exists in other agro-food sectors such as bottled water, powerful actors may possibly appear and grab an important part of the global market or, more exactly, operators with an international dimension, capable of manufacturing “while marketing” products i.e. close to their final consumers, offering wine that perfectly matches their tastes and adapting their packaging and prices by transforming, collecting or bottling grapes, must or wine purchased in bulk from other producers in other countries. According to this model, those who create the value are no longer those who produce raw materials, but those who transform it.

In such a scenario, competition no longer takes place among wine producers and exporters alone as is the case now, but among them on the one hand and international groups transforming raw grapes or wine material (produced elsewhere and by others) on the other, with – as main referees – the consumers and distributors.

B. Production areas: towards redistributing the cards?

3 production areas seem to be emerging as we approach 2050, each one having to face different challenges.

France, Spain and Italy, and more generally the EU are on the threshold of a significant change since the new Common Market Organization (CMO) - adopted in 2008 - will be fully effective on 1 August 2009. Developed with - among other objectives – their determination to clarify the European offer, the new COM should in essence provide a certain consistency among the various wine producing countries, which will possibly increase competition among them. Furthermore, climatic changes may disrupt this construction and the new regulatory framework resulting from lengthy negotiations between Member States could rapidly become ill-adapted to the revolutions the world of wine is about to experience.

For its own part, the “New World” (the U.S., Australia, South Africa...) symbolizing in the past 20 year the success of a new notion of wine - with less stress and more innovation - is forced to streamline its production and move towards a model that is closer to that of

traditional wine producing countries. This convergence of models seems vital to them, particularly because of the emergence of a “New New Wine World”.

This “New New World” is to become the world of new wine producing countries or formerly wine producing countries having resumed production, whether they are globally oriented frontrunners with a high potential such as China, India, Brazil or second-tier actors, locally or regionally-oriented as some countries in Eastern Europe (Bulgaria, Georgia, Hungary, Ukraine...) or Mediterranean (Algeria, Lebanon, Morocco, Tunisia or Turkey).

1 / The “New New World”: A new El Dorado?

As mentioned above, global warming will lead to an expansion of the production areas, allowing a number of countries that did not have the capacity to produce grapes and wine to do so. Technological developments in viticulture will also offer a possibility to adapt cultivation to climate and soil specificities and to control most hazards. Finally, this new economic model, which should lead to greater globalization and to the possible emergence of wine “multinationals” might develop via this opportunity to establish grape or wine factories in a number of countries.

Two categories of countries, however, deserve to be distinguished. The first one includes the future wine giants China, Brazil and possibly India are bound to become. The second includes countries having different and smaller potentials, which will be able to target regional markets, fill niches and even serve as relay supply areas.

1.1 / Future wine giants

Countries with similar characteristics fall into this category. Gradually developing their wine production with the ambition and potential to occupy leading positions worldwide in the next few years, they should be the primary and main beneficiaries of the combination of 3 factors that will upset the global production system (see above).

In 10 years, China has seen its vineyard surface grow by 176.3% and reach 500,000 hectares (6% of the total vineyard surface in the world), and its production increase by 94.7% making it the 5th vineyard in the world in 2007 and the 6th wine producer in 2008. At the same time, its exports have dramatically increased: + 500% in value and + 232% in volume between 2005 and 2007. One can easily imagine the progress made by China, knowing that the average annual production has increased from 2.734 million hectolitres over the 1986-90 period to 12 million hectolitres in 2005. Currently, China has 10 major wine producing regions, each one of them having a different geographic and climatic configuration. In 2050, owing to scientific advances and climate changes, China will be able to produce extremely consistent volumes of grapes and/or wine. By calling on foreign experts’ assistance when necessary, it will also produce much better quality wines than its current production, with which it satisfies 90% of its local demand. As a proof, the example of Château Lafite, which has recently announced its intention to produce a Grand Cru (vintage wine) in China in the (East) Shandong Peninsula. The Shihezi and Xinjiang regions enjoy indisputable natural conditions with a mild climate, moderate rainfalls and a fertile soil without pollutants; they are equally propitious for the production of excellent wines. The country currently disposes of 4 major players: Changyu, that holds 20% of the market share, Great Wall (17.3%), Tonghua (14%) and Dynasty (10%), although for the time being Chinese operators are mostly limited to their region, including Japan (75% of the exports).

Brazil also disposes of vast arable land resources, which provide it with a great potential. In 2007, the Brazilian vineyard spread over 88,000 hectares, representing a 20.6% increase over 2007. Brazilian production, on its side amounted to 217 million litres, driving the country to the 15th rank among world producers. Its exports are still fairly weak and reach - for the moment - no more than 3.5 million litres. But Brazil, cultivating only 6% of its lands, is seen as a serious competitor, particularly the state of Rio Grande do Sul where 90% of the national volume is produced. The country also enjoys quite limited regulatory constraints. Thus, an improved irrigation system in the desert region of Sao Francisco River Valley can increase the local production each year despite very difficult conditions for vines. Just like Australia that benefits from the “Winemakers Federation of Australia” - capable of designing plans involving the trade - Brazil has equipped itself in 2004 with its first wine consortium (“Wines from Brazil”). Accordingly, whereas Brazilian exports kept dropping for years, the trend is currently rising (+ 30% in value between 2005 and 2007).

In India, the production is still in its early days. Indeed, its vineyards, with an overall size of 60,000 hectares in 2007 have increased by 65% in 10 years. There are currently 50 vineyards, half of which were planted during the last few years. They are spread across 3 regions of the West Coast. But new areas are now being planted. India is, with China the country that has the greatest capacity to develop high quality wines, and will possibly reach the “Premium” category (20% of its production). Its wines are also becoming better and better known worldwide. This is evidenced by the fact that Indian wine exports are growing increasingly fast in terms of value than in volume. Its major market players are Chateau Indage, which provides 40% of the Indian production (3.6 million litres), Sula Vineyards (25%, 2.4 million litres) and Grover Vineyards (15%, 1.2 million litres).

Accordingly, in the future, India will be able to market quality wines competing with the high standards to be found in other more “experienced” lands. Moreover, the hot and humid climate prevailing in the country enables vine growers to harvest twice a year, which makes them very competitive in terms of volume

1.2 / Second-tier actors

Next to China, Brazil and India that have an exponential potential, other countries are to be found that, far from being able to compete with these giants, will certainly defend their assets. Among them, some will specialize in growing grapes in large quantities and selling them to other countries or to large multinationals that will deal in turn with transforming them into wine or other wine products.

With 3.5 to 4.1 million tonnes of grapes a year, Turkey is the 5th largest grape producer. Even if this production is, at the moment, mainly used for raisins, one can imagine that within a few years Turkish grapes will become a vital raw material for a number of countries wishing to make wine. The same could go for Iran having produced no less than 2.9 million tonnes of grapes in 2005. Therefore, in the future, countries with a similar profile will be able to provide raw material to countries that have none, or to multinationals wanting to ensure their supply.

The North African countries and Lebanon have a long winemaking tradition that may date back to the Roman times. Their wine production is still marginal and will not compete with the traditional or the “New World” production but, by freeing themselves from the constraints of traditional production areas and relying on technological innovation to cope with global warming, they could become stronger, due to the fact that:

- there are niche markets in Europe for their very typical wines;

- tourism is developing;

- foreign operators need to diversify their sources of supply and production areas, the closest being naturally the French, the Italians and the Spaniards.

Benefitting from a tremendous historical opportunity because of their geographical proximity with Russia, they enjoy relatively large vineyards, specific grape varieties and an ancestral or even millennium wine tradition. Bulgaria, Georgia and the Ukraine have assets allowing them to develop an ambitious wine sector, they are “lands” for international operators, although major investments will be needed to modernize their networks.

Bulgaria produced 1.54 million hectolitres in 2006, one third of which was exported mainly to Russia and Poland. As for Ukraine, its production in 2008 was the highest since 1991 with 2.09 million hectolitres, which represented the highest production since 1991 with a 170,000 hectolitre-increase as compared to 2007. As to export, Ukrainian wine sales have improved in volume and value, rising from 170,000 hectolitres to 250,000 hectolitres. Georgia’s case is, in fact; quite special since the Russian embargo present since 2006 threatens the entire Georgian wine sector although nearly 12 million bottles of Georgian wine were sold each year on the Russian market before the decision was made. Yet, the potential is there and the embargo will eventually be lifted one day.

The large groups did not miss the point. Accordingly, the Campari Group has just acquired - in early 2009 - its first share in the CIS countries by purchasing “Champanskoe” - a wine factory near Odessa that is at the head of 16 trademarks and whose production capacity is of 15 million bottles a year. Pernod-Ricard, for their part, have owned Georgian Wine & Spirits for several years already.

But these three countries -and more precisely Russia and all the CIS countries - will remain anchored to their traditional trading area, namely the former USSR. Western Europe is not yet ready to welcome these wines. There, the competition between French, Italian, Spanish, Chilean and Californian wines is already too strong to allow them to accept wines of lesser reputation.

For its part, Hungary - that also has a fairly long wine tradition - is recovering slowly from a 40-year period of “wine dormancy”. Today, the grounds where vine is cultivated stretch over 93,000 hectares and produce - on average - between 3.5 and 4.5 million hectolitres a year. The Hungarians are resuming their relatively large wine consumption, since it reaches 30 to 32 L a year on average. Hungarian wines can prove to be high quality; evidence is provided by the many medals that some of these wines have gleaned during competitions in London, Bordeaux, New York. Therefore, Hungary will probably mostly work on strengthening its wine sector, enhancing the specificity of its offer, and consolidating its commercial presence in its niche markets in Europe and outside Europe.

2/ The “New World”: a convergence towards the “Old World” model?

Similar to their new plan the Australians have just designed for their wine sector, the “New World” countries will be compelled, after having conquered the world, to favour a quality and value strategy. Australia is indeed a rather speaking example of what will probably happen in other New World countries (South Africa, Argentina, Chile, the U.S....).

Late April 2009, the Australian Wine and Brandy Corporation published a report stating that Australian wines' exports value had dropped by 14%. This decline is due to increased cheaper wine exports at the expense of higher segments, which have declined by 75 million litres. Anticipating this phenomenon, the AWBC and the WFA (Winemakers Federation of Australia) took the initiative - in May 2007 after a year of work - to present a gradual transformation plan for the sector: "Directions to 2025". This plan comes after the previous "Strategy 2025" plan, which Australia has followed since 1996 and has allowed the country to prod - on a number of markets - the largest wine producing countries - even though its targets were eventually achieved too quickly, which led to overproduction and unbalanced markets.

The new plan - "Directions 2025" - should improve the value and image of Australian wines. The key words are not only volume and conquering foreign market but also profitability, sales growth in terms of value and segmentation. First ambitious short-term objective: to have increased sales abroad and in the domestic market by 15% in value by 2010-2011 and reach 30 billion Australian dollars against 26 billion forecasted to date. This strategy is no longer only quantitative but also qualitative. This is to avoid overproduction at all costs, since it has depressed prices and harmed the profitability of many wine companies throughout the country for the past few years.

Especially since, as has highlighted above, the New World is no longer alone, and is preparing to gradually cope with new competitors who will not hesitate to use the recipes that have made its success. Therefore, Australian wine marketing is now strongly focused on regional and fine wines, with the aim of improving their positioning. Up-selling and differentiation will be the new leitmotifs. Communication on these products will be adapted by emphasizing the different varieties and vineyards available to Australia.

But this new plan does not only have a marketing interest. Australia is bearing the brunt of climate changes. Faced with these changes and the strong competition that exists now for access to water resources, Australian producers are forced to rationalize their production and improve their environmental performance.

Australia, often a leader and a pioneer among "New World" countries, illustrates this convergence of models and the incipient rapprochement between "New World" and Old Europe producers.

More generally, these countries will have to adopt a differentiation strategy through strong marketing, emphasizing the geographical indication (GI) orientation and combining it with characteristics that are attributable to the local land. The Americans seem to have begun this process by establishing AVAs (American Viticulture Area), which are areas with specific geographical characteristics and whose boundaries are defined by the United States Government Alcohol and Tobacco Tax and Trade Bureau (TBB). On 23 May 2007, there were 187 AVAs in 30 states, including more than a hundred in California.

Furthermore, the use of appellation systems such as acknowledged in the European Union and within the OIV framework (towards the standardization of geographical indications?) will allow increasing the heritage valuation of investors' assets who own a significant part of the "New World" vineyards.

Another advantage is that referring to local production lands or areas seems to be a way to limit the risk of seeing brands move to areas where growing induces less stress and proves to be cheaper (vineyards and even industrial tool relocation).

Production with constraints will generate an added value, as is the case in France for instance. This will allow the producers to improve their wines' image and sell them at a higher price. In the mid 21st century, the "New World" wines - placed in the "Premium" category and calling for the same differentiation criteria - should come into direct competition with the traditional French offering. In the opposite case, they will clash head on with the "New New World" competition.

But this change of production models in the "New World" countries will certainly not be the only one. The intensity of the climate change may well permanently penalize them (see the Australian example). The odds are that they will not allow the fruit of many years of labour to be destroyed and they will do all they can to adapt in the best possible way and save their products and brands. Moreover, it is certainly not for nothing that the new Australian plan advocates a commitment to research in development and innovation. The use of GM vines could of course be considered. The first step would be to adapt vines to a new configuration, but once the first barrier to the use of GMOs has been crossed, these will certainly also be used to improve wines' taste and quality. This could constitute a decisive advantage for these countries, enabling them to produce wine that best meets consumers' expectations. No one knows yet what the OIV's reaction facing such changes will be, and even less how consumers will respond. Will wines produced from genetically modified vines report the fact on their labels? Will GM vine production ratios be limited?

3/ France and Europe: towards which CMO?

Within the European Union, the common organization of a market or sector (CMO) is the regulatory framework establishing the organization of a market or sector and settling on the aids and support provided to producers.

The CMO Wine reform results from of several years of work at the European Commission and negotiations between the Member States at the European Parliament (unlike the Australian plans, for instance, which were drafted by professionals). The new regulation, officially in force since 1 August 2008, is fully effective since 1st August 2009 and will bring deep changes, the magnitude and impact of which are still difficult to comprehend from the point of view of producers and consumers.

Adopted to overcome the shortcomings of the former CMO, the new CMO was developed with the aim to increase the adaptability of the European network to new global competition. Its preparation took place in a context of crisis and criticism as to the complexity of French and European systems preventing our operators from standing up to the "New World" countries' competition whose bid was seen as being much more readable.

The measures are numerous in terms of planting and uprooting, of help in promoting domestic and external markets, and in terms of oenological practices. But what appears – for producers and consumers - as being the key measure is the simplification of wine segmentation levels on a 3 level-basis:

- Protected Designation of Origin (PDO) will replace AOC (Appellation d'Origine Contrôlée, *literally Controlled Name of Origin*), which more than PDO symbolizes the relationship with the local land;
- Protected Geographical Indication (PGI) replaces the former Vin de pays of (*literally Country Wine*), being less restrictive than PDO;
- table wines (*VDT or Vins de Table*) without geographical indications with or without varietal names.

This new European wine regulatory segmentation will drive each producer to make a new positioning choice. Michel Roumegoux, former Deputy Mayor of Cahors, Special Adviser to the Minister of Agriculture and Fisheries, sketches in his "Plan de la filière vitivinicole française à l'horizon 2020" (*Plan for the French wine industry in 2020*) presented in late 2008 a first trend describing what the evolution of the new configuration of the European market could be:

- a reduced local wine offer, wines with geographical and varietal indications (PGI);
- an increased offer in wines without geographical indications but with varietal grape names (VDT);
- the PDO segment should remain stable or even experience a sales increase following the AOC change to PDO, which is expected to update AOCs that do not deserve their title, restoring in this way PDOs' meaning in terms of high quality image.

According to Michel Roumegoux, this should hardly make any difference as to the European - and especially to the French - supply whose large volumes will remain focused on opening and standard ranges. In other words, improving the competitiveness of the European offer as allowed by the new CMO should not be accompanied by an upmarket move, better recovery or greater profitability in this sector, whereas our main competitors in the New World have already started to engage into an opposite strategy.

But will the climate changes affecting Europe challenge the CMO? Will there still be a difference between local lands (PDO) and territories (IGP) by 2014?

The consequences of global warming are detailed above. Changes in their climate could contribute in altering the current configuration of the various local lands (50% of the local lands are characterized by their climate). Thus, the very strict criteria established to supervise PDOs will be difficult to reconcile with the maintenance of existing local characteristics. For instance, if the temperature increase actually reaches 2.3°C in the Bordeaux region, will a Medoc still bear the same characteristics? Or if the temperature increase is so high that it forces growers to change the way they plant their plots, will PDOs be preserved under good conditions? Through the numerous questions triggered by the climate change, the whole new CMO model itself could be questioned. And paradoxically, it is precisely when the Europe of wine - after having negotiated and legislated - finally disposes of a new unifying and consistent framework, that global warming is likely to contribute in redistributing the cards inside this zone.



But within the CMO itself, the question of maintaining differences on the long-term between local lands (PDO) and territories (PGI) arises. Indeed, although at the regulatory level and the differences between PDO and PGI are real - in consumers minds confusion may well be created over time. Furthermore, if climate changes happen to change local lands, where will the boundary be between local lands and territories?